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by J. Ralston Skinner

Hebrew metrology.
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No Error (a reply to Euphrates).
Lucifer v.2:12 (August 1888), 492-495.

Notes on the Cabbalah of the Old Testament: I-II.
Path, v.1:4 (July 1886), 103-108; v.1:5 (August 1886), 134-139.

The Doric, Ionic and Corinthian columns in Grecian architecture. 1887, 6 p. Cincinnati. From The Masonic Review for October 1885.

The identification of the British inch as the unit of measure of the Mound Builders of the Ohio Valley.
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HEBREW METROLOGY.

By Bro. J. RALSTON SKINNER, (McMillan Lodge, No. 141.)

This article having reference to measures strictly, was prepared for the Anti-Metric Society, of Cleveland, and published in the International Standard. It is proper to state that the newly discovered mode of language, veiled under the words of the Sacred Text, so far from in any way impairing the idea of Divine power, obligation and inspiration as belonging to the Holy Bible, serves but to strengthen, re-inforce and confirm it.

The subject of Hebrew Metrology, as ordinarily thought of and accepted, is not to be touched on in this paper for want of space. It would at any rate, be but repetition of that which can be gleaned from many works.

Tentatively we have discovered that the *radius seconds* of the circle of 360 *degrees*, viz., 206,264.70+ seconds, practicalized in measure as 20.$\underline{626470}$ imperial British inches, was an ancient Egyptian *cubit* value—the so-called *Nilometer* cubit. But in the numerical value of a proportion is the natural outgrowth or development of, geometrically, a *pi* value, wherein the *pi* ratio is 20,612 for circumference of a circle, to 6,561 for diameter. The proportion is this: 20,612 : 6,561 :: 64,800 : 20,626$\underline{470}$. And, indeed, 20,612 was utilized in like manner as a measure in the same standard (British inches), so that 20.$\underline{612}$ such inches made the length of another of the Egyptian cubit measures, the so called "Turin" cubit. By actual microscopical tests by Bidone and Plana (Seyffarth) the Turin cubit measured 20.$\underline{61172}$ British inches, and by Wilkinson the Nilometer cubit measured 20.$\underline{625}$ British inches.

The application of these cubic measures to the best reported measures of the Great Pyramid, proves that the cubits were derived from the above formula; as to which the actual cubits referred to show so close an approximate.

The learning of the Egyptians was that of the Hebrews, and there is demonstration that the most sacred measure of the Hebrews was the Turin cubit and its derivative, the Nilometer cubit. From this proportion 20,612 to 6,561 (which was esteemed in Holy Writ as true *pi*, and beyond doubt is*) the modified form of 355 to 113 is to be obtained. (See ' Crown Jewels of the Nations are Their Measures.') From these two ratios, viz: 6,561 to 20,612 and 113 to 355, the entire system of sacred metrology of the Hebrews took its rise, as is found demonstrated in the Hebrew text of the Holy Bible, especially in Genesis and the five books of Moses. One may imagine how sacred these measures must have been esteemed, when it can be said that on the ratio 113 to 355 rested what is called in the Sacred Record the "*Man even Jehovah*" measure (Genesis iv : 1), and that this rested for its origin upon the radical one of 6,561 to 20,612.

The Old Egyptians used the archaic Coptic language which was a dialect of the Semitic; from which last the Hebrew also. Ancient Ethiopia extended on a parallel from the mouths of the Nile and head of the Red Sea across to the head of the Persian Gulf. The use of the Hebrew language is traceable as progressing up the Euphrates, from this gulf, and this language is a veil or cloak for the setting forth the same system of science which the Great Pyramid, on the bank of the Nile, contains builded in stone. Moreover, the esoteric use of the Hebrew language extended to the Pelasgians or archaic Greeks, and the Dardanians,—became the basis through the historical myth of the Trojan War, by Homer, of the highest ideal conceptions of Grecian civilization,—passed over to Rome,—and from all these down to the present day, preserved by means of pertinent and enduring landmarks.

The interior, or sacred metrology, was not open with the Hebrews any more than with the Egyptians. To illustrate this : as said, the Nilometer cubit is found to have been 20.626470 British inches in

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*It may be interesting to those who are not aware of the fact to know that Professor Roche of Philadelphia, has by the simplest application of the rules of Euclid, shown geometrically the exact equality of a square for any given circle in area ; and this shows essential error in what is called established π.

length; but if an Egyptian cubit stick of this length, or of the length of 20.612 of such inches was examined it would be found that no division of the same would show any relation whatever to the British inch, or any denomination of measure founded thereon, as the foot, etc. Thus the workman would be in complete ignorance of such relation as belonging to the measure he was using.

The secret, as we have empirically and tentatively discovered, lay in this, viz: the knowledge and use of the Imperial British inch, and the denominations based on it, existed as a knowledge separate and secret and sacred. Either of the cubits mentioned was known, to those possessing this secret, in its totality, to be the one 20.612 of such secret, sacred inches, and the other 20.626470 thereof; and from these, by the transference of certain uses of the cubits themselves into this new realm of measure, an especial interpretation, perfect in its coherences and applications, as, for instance, to astronomical times and cosmic distances, etc., was made.

As to metrology: Instead of a valuable adjunct to the Biblical system, having mentioned here and there in the Sacred Text, the entire text of the Holy Writ, in the Mosaic books, is not only replete with it, as a system, but the system itself is that very thing, *in esse*, on which, and out of which, and by the continuous interweaving use of which the very text of the Bible has been made to result, as its enunciation, from the beginning word of Genesis to the closing word of Deuteronomy. For instance, the narratives of the first day, of the six days, of the seventh day, of the making of Adam, male and female, of Adam in the Garden, of the Garden itself, of the formation of the woman out of the man, of the extension of the time to the flood with the genealogy, of Ararat, of the Ark, of Noah with his dove and raven, of the space and incidents of Abram's travel from Ur of the Chaldeans down into Egypt before Pharoah, of Abram's life, of the three covenants, viz: with Noah, with Abram, and at Sinai, of the construction of the Tabernacle and the dwelling of Jehovah, of the famous 603,550 as the number of men capable of bearing arms who made, with their families, the exodus out of Egypt and the like—all are but so many modes of enunciation of this system of geometry, of applied number ratios, of measures and their various applications. This system, as said, embraces, for a part thereof, that same one which we find conclusively to be embraced in the structure of the Great Pyramid.

This system is a language in, of and by itself, which, moreover, embraces much which at first seems apart and separate from the discussions of exact science and astronomy, viz : for example, man in his various conditions and relations to what we call God, and also to nature, especially in the department of the exertion of the parturient energies. The reading of this language is an outgrowth from, in harmony with, and partly determined by, the visible and first face text. To the extent to which this language was known among the Jews, the learning and teaching thereof was called Cabbalah.

In the narrative form man himself, as the Adam, the Archetypal Man, the Adam Kadmon, was taken as the grand representation and containment of this entire system. In himself he was considered as the reflection of the Component parts or nucleations out of the Willing, Intellectual, Unknown, Incomprehensible First Cause; and thus became, in substance, thought and conception, the exponent as to all that came within his knowledge of that First Cause as to the phenomena of its operations; Itself thus, in him, becoming personal out of the impersonal. Hence in and of himself he contained this very system, which became in the text of Holy Writ, expounded in its chief words of nomenclature through himself and his names. As the First Cause was utterly unknown and unnameable, such names as were adopted as most sacred, and commonly made applicable to the Divine Being, were, after all, not so, but were such manifestations of the First Cause, in a cosmic or natural sense, as could become known to man. Hence these names were not so sacred as commonly held, inasmuch as with all created things they themselves were but names or enunciations of things known, either by experience or revelation. The ratio to which belonged 20,612 and 20,626 were those from whence came literal and matter of fact measures, which, in turn, took names from the members of the man. Thus the Hebrew system of measures rested on the thumb's breadth, the digit, the palm, the span and the cubit. These measures were made, by a beautiful mode of construction, to coördinate measures of space with those of time. By the very fact that they borrowed from a man his members as a mode of nomenclature, so in the comprehensive term man himself, in the numbers of his name, viz : 113 was found a typical and subordinate source or mode of measures, peculiar to themselves, in use and application and intendment.

To somewhat explain this, let us refer to the canon of Vitruvius as to the rules or architectural modes of construction of temples to the immortal gods by the Greeks. Suppose the circle of the base of a column, for esoteric measures to have been taken from the form of a man stretched out on the ground looking upward, so that taking his navel as a center, the circumference line was made to touch the extremities of his outstretched fingers and toes. Now this man, thus occupying this space, might be held to be the typical or man measure of the base of this column, out of which and constructed with which should belong the attending circumstances of height, shape, capital, grooves or flutings, *et cetera*, of the column; and all this to grow out of the ideal and merely abstract number of his name, irrespective of whatever actual measures might be given to such a column, as so many cubits, palms, digits, or what not. Thus this column, irrespective of its actual measures, could be read in terms of its ideal abstract typical ones, as for instance: *Man* is 113; this is diameter to 355 for circumference, and 355 for one thing indicated the measure of the lunar year, (*Shanah*) in the natural measure of days, and at the same time was the proper name Pharoah. So, also, 355 is the outgrowth of the use of the word *dove* in the flood narrative, for its value is 71, it is used five times and 71×5=355. Now, to resume, suppose that for height the base of the column, or man measure, should for this purpose be taken for the length of the foot of the man, and by a rule of construction the height of the column should be taken as six times the length of the foot. Thus, the base being 113 (for *man*) then the height would be 113×6=678; and this is the value of the letters used for that other bird mentioned in the flood narrative in the expression or word, *āth-h' orebv* (*sic*, in the text, as connected by hyphen) " *and-the-raven*," the values of the letters of which give as their sum this same number 678. The diagram of this conception was a circle whose circumference was 355, it being the measure in days of the lunar year, and this number is the Hebrew word *Shanah*, the name of that year. The description in the Bible of the flight of the *raven* was that it went " *to and fro,*" which expression determines the use of this number 678. For the diameter of this circle of 355 being 113 if 6 such diameter lines are used to divide this circle " *to and fro,*" into equal parts, 678 accomplishes this result:— for 113×6 equals 678: which simply shows a scheme of the division of the lunar year of 355 days into

12 parts or months. Thus one can see that running along with actual measures is a typical system and use of same. This raven use of the numbers 678 is of great significance and found in various places; for instance :· We have it first as the prototype in the flood narrative. We also have it as the deepest underlying key to Grecian architecture in its inception, and, moreover, Rawlinson in his ' Herodotus,' says that the word is that from whence the name Europe.* We have it to-day, in such uses as causes the utmost amazement and surprise at the continued familiar use to some who must now be initiates of this kind of learning. But what is of the most interest to us is that the use crops out in the Great Pyramid. One of the most wonderful places in the structure is found in the attainment of the surface of the great step, where one arrives to the plane of the floor and open entrance to the Holy of Holies, or the king's chamber. The height of the grand gallery from the face of this step is 339 British inches. This is radius to a diameter of 339×2 =678 inches, or this very raven number. The radius is taken to show division into two parts, a favorite use, which are 1065 each. For the ratio 113 to 355 multiplied by 3 equals 339 to 1065. Now the numbers 1065 are the significant ones of Jehovah's name, viz: *jod, vav, hé,* or 10 and 6 and 5, which the rabbin's extol so beyond all other numbers and say that by their uses and permutations, under the law of *T' mura,* the knowledge of the entire universe may be had. The entire circumference will be 1065 × 2 = 2130, of which 213 is the factor with 10; and 213 is the first word in Genesis, viz: *Rash,* or *Head,* from whence the entire book. By one of the permitted changes 1065 becomes 1056, and in this we have the numbers of Mt. Sinai and those to show the descent thereon of Jehovah in a bush of fire, the chief object of the use of which numbers, so arranged and applied on the Mount, is to afford as a result the *exact* astronomical value of the lunar year, viz: 354^{3670548} days—that is, in natural measure. Besides this, and what is most remarkable, is the fact that these same numbers, under the letters given, were introduced into China some twelve centuries prior to the Christian era, and taught by

* The name Ionians signifies " *The People of the Dove,* " applying to Greece and Asia Minor. The term was taken from the religious *culte* of the *Dove,* which afterward became inwoven in the narratives of Christianity. The *West* or land of darkness, or of the setting sun, took its name from the Hebrew word for *raven,* for this word is o-r-bv, or Eu-r-bv, or Eu-r-pv, or finally Europe.

Wang, and quoted by Laoütz, the preceptor of Confucius, as the root and base of all knowledge, under the form of an enigma or riddle.

The distinction between the two branches of this general system, viz: between the actual measures from the ratio 6561 to 20612, and the ideal abstract *man* measures, from the ratio 113 to 355, gives rise to two great and well settled distinctions in the Mosaic Books. As a use, derivative and reduction from the first, we have the great God-word *Elohim*. The running characterizing small numbers of this name, in Hebrew, are 13514, which, placed on the bounds of a circle, will serve to give expression to the measure of the same; for they can be read as 31415, which is what we to-day call the value of π, and is so significant as to be used in astronomical tables as a *constant co-efficient*, that is, it is the numerical value of the circumference of a circle whose diameter is *one*; hence the Biblical expression by the rabbins: "His name is *Echod*," or One. This is the distinctive, so-called, *Elohistic* branch. As a distinctive use under the second, we have the "measure of a man," or 113, which also is significant of a π value, inasmuch as it is diameter of a circle to a circumference of 355. But in its Biblical origin, Genesis, chapter iv, verse 1, it is called the "Man Even Jehovah" measure; and this is obtained in this way, viz: $113 \times 5 = 565$, and the value 565 can be placed under the form of expression $56.5 \times 10 = 565$. Here the *man* number 113 becomes a factor of 56.5×10, and the reading of this last number expression is *jod hé vav hé*, or Jehovah. Hence this is the distinctive, so-called, *Jehovistic* branch of these books. The expansion of 565 into 56.5×10 is purposed to show the *emanation* of the male (jod) from the female (Eva) principle; or so to speak, the birth of a male element from an immaculate source; in other words, an immaculate conception.

In Al-Chasari, by Hallevi, written in the twelfth century, the author clearly shows the distinction between the names Elohim and Jehovah, in this, viz: that the first is a generalized term, serving as a constant as entering into all created works and forms whatever, while the name Jehovah is a particular or discrete manifestation of most especial value to man because of His immediate intervention in and superintendence over man in all the most cherished details of his being, especially in the department of conception and birth, *i. e.* as the energizing activity.

I now assert that what has been said can be proven to demonstration from the holy books, and then reinforced and confirmed by a multitude of supporting facts, scattered all along down through history and tradition. It all goes to show that the world of thought and study, through these thousands of years, has, in accepting the Biblical record on its first face reading only, been taking the *shadow* for the *substance ;* and hence the interminable difficulties and unending changes of exegesis.

And in view of this, let me close this contribution with two quotations—one from Schopenhauer and one from Ralph Waldo Emerson.

Schopenhauer, in ' World as Will and Idea,' says :

In the idea of perception, illusion may at moments take the place of the real, but in the sphere of abstract thoughts (such, for instance, as compose the religious philosophy and Biblical exegesis of our day) error may reign for a thousand years, impose its yoke upon whole nations, extend to the noblest impulses of humanity, and, by the help of its slaves and dupes, may chain and fetter those whom it cannot deceive.

Ralph Waldo Emerson says :

The religion that is to guide and fulfill the present and coming ages, whatever else it may be, must be intellectual. The scientific mind must have a faith which is a science, at first cold and naked, a babe in the manger again, the algebra and mathematics of ethical law, the church of men to come, without shawms, psaltry, or sackbut ; but it will have heaven and earth for its beams and rafters, with science for its symbol and illustration ; and it will fast enough gather beauty, music, pictures and poetry.

FREEMASONRY

Its Object to Preserve Weights and Measures Founded Upon the Parker Modulus and the British Inch

By J. Ralston Skinner

PART I

(Mr. J. Ralston Skinner, of Cincinnati, Ohio, was the author or the "Source of Measures," a work of great erudition relating to the Great Pyramid of Gizeh and its connection with Esoteric Doctrines. We can state from a personal acquaintanceship with him that while he was a great scholar and Cabalist, he was also modest, affable, and tolerant of the opinions of those who differed from him as to the results of his studies.

(In 1880 Colonel Skinner delivered a lecture with the title which stands at the head of this article. He was *not then* a Freemason, but he afterward became a member of the Fraternity. The lecture was copyrighted, but comes to us from the hands of his "literary legatee," with permission to print all, or such parts of it as we choose, in THE NEW AGE.

(All students of Masonry will be grateful to our Brother for his kindness in giving us the use of the manuscript. He has also given us permission to have copied certain portions of another very valuable manuscript by Colonel Skinner, and to publish them in THE NEW AGE. This last-mentioned manuscript was left by its author, at his death, to the same Brother who has sent us the present article, with the injunction that it should "not be printed until the proper time comes." The significance of its appearance in our pages is not far to seek.

(Part of the lecture from which these articles are taken was printed twenty-seven years ago. The *whole* of it has never been published, and we shall only give a part of it so that our readers may have some notion of the depth to which this investigator extended his researches. G. F. M.)

THE French unit of linear measure is one arbitrarily adopted and has no foundation in, or relation to, the phenomena of nature. Its only possible recommendation is a convenience of use and a prospective possible universality of adoption.

Our claim is that the British measures, outside of other regards, commend themselves because, (1) they are not arbitrary, but are founded on a natural and Divine origin in geometry; which origin with these measures, exhibit themselves as a manifestation of the First Great Cause, in the astronomical construction of the universe of rolling worlds, of which our solar system is but an infinitely small part; and (2) because they constitute the connecting link, by means of which man in a scientific way, can demonstrate his essential relationship to a spiritual world; in the mentality of which he must form a related element; thus framing a part of a brotherhood visible and invisible, having the Great Eternal Architect at the head, as Father, Provider, Brother, Sympathizing Friend, as Mechanical Teacher, and companion in work.

This is a claim for value, you will admit, strange, even almost to a phase of monstrosity; yet, also, you will admit, one worthy to defend the abolition of our system of measures, against the specious merits of any other, if only a portion of this, our assertion, can be made good.

It is quite necessary, as a preliminary matter, to call your attention to the geometric origin of the British inch. This geometric origin is the discovery of John A. Parker, late of the City of

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New York, and I have, because of its function as a constant coefficient, ventured to name it in honor of his memory, the Parker modulus. You will by it see: (1) that a square of 81 to the side contains an area of 6,561, and that the circle inscribed in this square, contains an area of 5,153; (2) that converting and considering this 6,561 as the length of a right line in place of an area; then a right line 6,561 long is the diameter of a circle whose circumference will have a length of 5,153 multiplied by 4, or 20,612. Thus, we have the relation of the diameter to circumference of a circle numerically notated as 6,561 to 20,612.

If now we ascribe a measuring value to this 20,612, and call it 20,612 British inches, this is the correct measure of an ancient Egyptian cubit value, on its actual restoration. This is called the Turin cubit, for the materials for this restoration were amassed in the Turin Museum, as well as by the works of Professor Greaves, of Oxford, England.

Let us now, on this Parker modulus, take the geometric proportion: 20,612, 6,561, 648, 20,62,647,001. On investigation it is found that if this fourth term is taken as so many British inches, it is the correct value of another ancient Egyptian cubit, called the Nilometer cubit, on its actual restoration.

If we raise the first and fourth terms of this last form in their full value, by multiplying it twice by four-thirds, then, as to the fourth term we will have the exact number of inches in the collective length of the four sides of the base of the great pyramid of Egypt; while the successive results of the multiplication of the first term give us, respectively, a foundation for the exact admeasurement in time, of the moon's time for lunation, and of the earth's time about the sun; so that by this peculiar relationship of these cubit values the measure of one in British inches carries with it a use of the other to obtain these exact time periods. So, the base of this pyramid in British inches (thus composing the cubit values) is calculated to carry with

it, co-ordinately, astronomical time date of the utmost importance; which results can not be had save by interpreting these cubits as resting on the foundation of British inches.

Let us, however, now consider this form of 20,612, 6,561, 648.20, 62,647, 001, raised just as it stands in its decimal expression by twice multiplying it by four-thirds. By doing so, we have as to the second term 6,561, a result of 11,664 British inches, we have the exact restoration of the ancient Roman Foot. For this abundant evidence could be afforded you if time permitted. So, you see, the foundation unit of linear measures of the ancient Romans was founded on this identical form so raised, and why? Because it affords a co-ordination of measures of space and time; as to time it affords the value of a lunation and of the year circle of the earth. As to space, it connects the Roman foot at once with the measure of the great Egyptian pyramid. As to origin, it makes the Roman foot rest upon the numerical annotation of the geometric relation of diameter to circumference of a circle.

The great pyramid of Egypt has had a wealth of labor bestowed upon it, by the ablest British engineers, to obtain the exactest measures possible, of its various parts. The most reliable among them in the order of their efforts, have been Greaves, of Oxford, Col. Howard Vyse, and Piazzi Smyth. Mr. Lane also has presented some measures which have been closely verified and praised by Mr. Smyth. Professor Smyth, in a spirit of purest love of the truth, has personally obtained and furnished to the world, a mass of measures which may be esteemed the most accurate and reliable ever made by man. It was in the prosecution of his labor of love and self-sacrifice that he, by his own admeasurements verified those of the others named, and brought them for reliability up onto the plant of merit of his own. Now, by this form of restoration of the old cubit values as given, used in the most simple manner as factors, this pyramid can be reconstructed in all its parts, so as to come together

and form a grand, beauteous whole, with the various details of measures restored in the very actual measures of these gentlemen. But the strangest part is to be told; when thus reconstructed, it is only by the use of these measures in the terms of British inches, feet, and so on, that the architectural intent of the builder can be made apparent and brought to light. In the terms of these measures, the various lines exhibit themselves as expressing the most fundamental conditions of astronomical and geometric science by co-ordinating interpretation, thus presenting, in one grand whole, a related system, composed of geometry, numbers, measures of space, and of time.

If this is so, then these British measures have a history of some thousands of years, through the vicissitudes of which they have, by some marvelous, supervising care, passed unchanged. Let us say here, that Professor Smyth, in theorizing, has attempted to obtain the veritable unit of measures used by the architect of this great Egyptian work, and thinks he has found in it a unit which is essentially greater than the British inch. Here, however, we have this unit in the very British inch itself.

I know that assertions of this kind which I have made, even if they are accompanied by demonstrative proofs, are, because of their strangeness, calculated to arouse a bewildered astonishment with an inability for a long time on the part of the mind to really realize, receive, and accept the demonstrated results. One will see, calculate, and prove, but in the midst of this he can not appreciate, grasp, and realize the living, simple truth of the situation. It will take him long before the mind will accept, cerebrate upon, and gradually adopt the real truths, however simple they may be, in and of themselves. There stands here the need of some, so to speak, flux, which will bring the two otherwise unyielding elements of mind and fact, into the desired ultimate of realizing appreciation.

If I could say to you, that this matter had been investigated and accepted by many whose names were familiar and whose judgment was authority with you, this would be in the nature of the fluxing element which at present we in this assemblage require.

Now, let me say to you that the claims for the Parker modulus made here and in this especial connection, are the very least in the grand field of its sovereign potency. Its greatest office and function is to furnish to the rational scientific man a way to the comprehension of God with man's relation to and dependence on Him. It claims to show this way embedded in the words of the Hebrew Bible. It claims to be able to unfold to man the essential element of the Hebrew Cabbalah, that delivery or tradition of Divine oral Communication by Deity to the famous Hebrew Characters, Adam, Noah, Abram, and Moses, and through them, thereafter, to the chosen ones of the chosen people. I claim that the institution of Freemasonry contains the very essence of the most precious treasure of the Bible—that it contains the very elucidation and reading of this Cabbalah. But what is of, to me, the most importance just here, in this place, and in the present connection, is, that Freemasonry is founded, in its very essentials, upon this identical Parker modulus, in its various modes of geometric display, numerical annotations, measuring uses, and astronomical developments. I come before you to appeal to this great order as a living, existing witness of the existence of all which I have asserted to pertain to the Parker modulus and its applications.

Let us now turn to what is called Freemasonry, which uses the Parker modulus as the base of its structure; not only so, but sets it in the halo of divine effulgence. *I am not and never have been a Mason.* I derive my data from the open published works and expositions of and about the order. I can safely aver that I have never been led by any empty or impertinent curiosity to fathom the secrets of this order. I find that it possesses within itself this Parker modulus as the very base of its structure, and make use of this as testi-

mony, in hopes that by means of it the public may be led to investigate the mode of rectification of the curve of the circle and adopt the Parker ratio as the true one. Masonry has, as an order, served a great, wise, beneficent, and providential purpose in its existence throughout the world's history. Its greatest beneficent use will prove, however, to have been the preservation of this Parker · modulus for a time in which popular education and capacity fits the outer world for its reception; and for the laying of the ground work of true religion and true liberty in God, wherein is taught that the world killeth but the spirit maketh alive or shall set one free.

The entire ritual of Freemasonry is an enigma or blind, as to which the real reading, if now known at all, is in possession of scarcely one single man in the order in this country. It is therefore somewhat similar to the dream of Nebuchadnezzar. He said to his Chaldean magicians: "I have dreamed a dream and my spirit was troubled to know the dream" but "the thing has gone from me." This dream is gone from Freemasonry, and it is troubled to know it and its solution. Let us try to disclose its substance and its interpretation.

The mode by which Freemasonry sets forth the application of true, exact science, is made up of many ways of enunciation which will shadow forth the true intent. There is no one mode of mystery, but various modes, each is of imperfect working unless supplemented by various and many others. So the accidental discovery of a key to the working of one part can hardly form a step or basis to the unravelment of the tangled skein of many other complementary modes. The chief use in working Masonry is the man himself. As working Masonry depends for the most part on the Hebrew Scripture, so the man is important for his Hebrew name.

In moving this man in various ways, Masonry sets forth various problems founded upon the shapes and numbers connected with his name. Besides this,

as complementary to it, other words are used by the man. Stories are told of his acts. Pictured symbols are made use of with broken pronunciation of the letters of words to which Scenic representations are added.

Masonry is founded upon a religious basis—a true one because rational—eminently satisfying to the mind that can grasp the rationale of its foundations. Its ground-work is astronomy, especially that of our solar system. Sometime and somewhere in the remote past of our race, the creative law and the architectural conception of what the solar system was to be, before it was, under and by virtue of this law, became known to man. It must have become thus known by superhuman interposition. This creative law was disclosed as resting upon a base of pure geometry, viz.: on the relation of circumference to the diameter of the circle. The proportion of parts of the one to the other became comprehensible to man through the use of numbers as symbols. Thus some creative mind ordained, "Let certain proportional parts be related to each other in such a manner that a peculiar shape shall arise;" in obedience to which that which we call circle sprung into the possibility of thought and recognition. The shape itself was nothing, but the presentation of, and obedience to, the willing mandate, and the numbers of the related proportional parts are nothing more or less than the token of the primal conception itself of the creative mind, upon which conception the mandate issued. "Let obedience to this conception be the circle."

There are three ingredients in the solar system, viz., time, space, and matter, and under the latter is embraced the sizes of the planets. There is, and must be, in this system, a running co-ordinating relation between time, space, and size. It will be overwhelmingly evident, on reflection, that the mind of man *ab initio,* could never invent a practical measuring system to co-ordinate these.

There are natural measures of time, viz., the rising and setting of the sun, the circuit of the moon, the return of

the earth to its starting place among the stars. But as a matter of primal invention, what arbitrary division will one give to the day as the most natural division to be selected? Again, the size, say of the earth, has to be taken into account, so that the measures thereof shall work harmoniously up into the measures of its time. What unit of measure shall be selected, none being in existence? There can be but one right one under the conditions. What possibility that the mind of man could obtain that one, when he possessed, by possibility of himself, no data to guide his choice?

Now, it was ascertained that in the twenty-four hours of the day and the actual measure of running back to and grasping the stupendous fact of the primal architectural conception of the solar system as a truly mechanical process, in its harmonic and co-ordinating working. He recognized the fact that there was a great unseen Mechanic who had created these special divisions or measures for and about the system, on a little part of which he, man, as an infinitely miscroscopic ephemera, sprung and belonged by like a mandate. Thus, by this process, he was forced to the knowledge of a first specific, intelligent Cause or God, so called in the nomenclature of our ignorance; and this is the only process in all the realm of man's knowledge which does specifically give him that information. It is no small matter to be able to say, "I know that God is, having practical, realizable, inventive, and mechanical attributes of which man's is a real part in common." This knowledge Masonry possesses, and throughout all time it has held this practical knowledge as beyond all price precious. The Mason has held and been forced, by the very nature of things, to hold that those measures must have been imparted to man by God Himself. They become, then, the ladder by which man can, by a rational, scientific process, climb to the doors of heaven. It is a true inductive system leading to this result.

This was the Cabalistic system of the old Hebrews, hidden away in the Thorah, or Five Books of Moses, and there is every evidence that Masonry is but the exposition of this Cabalah under its own peculiar forms of veils and mystifications.

The vast body of Freemasons are in the condition of total ignorance of the real teachings of the system to which they belong, and it may be a question whether the last veil of light has ever been lifted in American Masonry.

Thomas Paine, in his article on Freemasonry says: "From these reports and declarations of Masons of the highest order in the institutions, we see that Masonry, without publicly declaring so, lays claim to some divine communication from ⁴the Creator." He goes on, however, to say, "In a manner different from, and unconnected with, the Book which the Christians call the Bible; and the natural result is that Masonry is derived from some very ancient religion, wholly independent of and unconnected with that Book." But this statement arises because of Mr. Paine's total ignorance of the real scope and teaching of "that Book." Mr. Paine makes some very valuable quotations from distinguished Masons. From, for instance, Capt. George Smith, Inspector of the Royal Artillery Academy, at Woolwich, in England, and Provincial Grand Master of Masonry for the County of Kent, viz.: "When the Sovereign Architect raised on Masonic principles the beauteous globe, and commanded the master science, geometry, to lay the planetary world and to regulate by its laws and whole stupendous system in a just, unerring proportion, rolling round the Central Sun." Here is Masonic affirmative corroboration of what has been said above. Doctor Dodd says: "We trace its footsteps in the most distant, the most remote ages and nations of the world," and Mr. Paine says: "The Worship of the sun, as the great visible agent of a great invisible first cause, time without limits, spread itself over a considerable part of Asia and Africa, from there to Greece and Rome, through all ancient Gaul, and into Britain and Ireland." Especially does

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Smith say, "It is not every one that is barely initiated into Freemasonry that is intrusted with all the mysteries thereto belonging; they are not attainable as things of course, nor by every capacity." He might have added that there is no attempt made to enlighten the masses in the lodges as to the real essentials of Masonry; indeed, it is a common complaint among Masons that, being led along, they never learn anything but mummery. It is interesting to note that in this Masonry has adopted the very course of the schools of the Cabalah. (Molitor).

Having promised this much, let us pass to our immediate object of show-

ing that Masonry is a living witness to the cause we have in hand. The chief object, as an emblem in Masonry, is the sun in the heavens—the moon also has an important place, as has also the North Star. The strength of the emblem lays in its being the visible source of light. Nor is there any especial value given to light as a phenomenon. It is because the word is derived from the Hebrew word for light, or Aor, whose signification we will presently show to be 20,612, or in the Parker circumference to 81 square, or 6,561, as a diameter and also 20,612 British inches, or one ancient cubit. This word and number is the foundation of Masonry.

(To be continued)

THE PATH THROUGH THE WOODS

The path through the woods leads out to the light
    Of a perfect summer day;
And on to the wave-kissed golden shore,
    Where sparkling waters play.
Sweet is the breeze with odorous flowers,
    Mingled with brine, from the sea,
And the silence is broke by the swishing waves,
    And the idle drone of a bee.

The pine-trees scatter their scented fringe
    O'er the carpet by nature wove,
Where ferns unfurl their pale-green fronds,
    And roses—untrammeled, rove.
Along the path are creeping vines,
    And berries of brilliant hue,
Where sunbeams filter through arching trees,
    And fairies string necklets of dew.

The brambles are thorny, and tangled the vines,
    As the path grows crooked and dim;
But ahead is light—and the blue waves chant,
    To the dirge of the ocean—a hymn.
So—the path of life, with its shadows of care—
    Leads on, to a sunlit shore,
While thorns that we trample along the way,
    Win us roses—forevermore.

—Agnes Lockhart Hughes

LUCIFER

THE THEOSOPHICAL SOCIETY: ITS MISSION AND ITS FUTURE.

[AS EXPLAINED BY M. EMILE BURNOUF, THE FRENCH ORIENTALIST.]

> " It is another's fault if he be ungrateful :
> but it is mine if I do not give.   To find one
> thankful man I will oblige many who are
> not."—SENECA.

> " . . . . The veil is rent
> Which blinded me !   I am as all these men
> Who cry upon their gods and are not heard,
> Or are not heeded—yet there must be aid !
> For them and me and all there must be help !
> Perchance the gods have need of help themselves,
> Being so feeble that when sad lips cry
> They cannot save !   I would not let one cry
> Whom I could save ! . . . ."
> THE LIGHT OF ASIA.

IT has seldom been the good fortune of the Theosophical Society to meet with such courteous and even sympathetic treatment as it has received at the hands of M. Emile Burnouf, the well-known Sanskritist, in an article in the *Revue des Deux Mondes* (July 15, 1888) —"*Le Bouddhisme en Occident.*"

Such an article proves that the Society has at last taken its rightful place in the thought-life of the XIXth century.   It marks the dawn of a new era in its history, and, as such, deserves the most careful consideration of all those who are devoting their energies to its work.   M. Burnouf's position in the world of Eastern scholarship entitles his opinions to respect ; while his name, that of one of the first and most justly honoured of Sanskrit scholars (the late M. Eugène Burnouf), renders it more than probable that a man bearing such a name will make no hasty statements and draw no premature conclusions, but that his deductions will be founded on careful and accurate study.

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Correspondence.

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IS THIS AN ERROR?

In the Editors' notes to the article on "The Crucifixion of Man," in the May number of LUCIFER, a quotation is given from *The Hebrew-Egyptian Mystery.* I have not seen this work and do not know the name of its author, but, judging from this specimen of his writings, he is very far from being a safe guide. From his way of treating the subject of the quotation, he is evidently not aware that the two Evangels in which the exclamation has been preserved reproduce the Chaldee translation or Targum of Psalm xxii., 1. This would have been more familiar than the Hebrew original to a Jew of the period in the habit of mixing with and teaching the people, and might well have fallen from the lips of such an one dying under such circumstances. To confront the Chaldee with the Hebrew here, and claim that the one is a falsification of the other is to make an unwarranted statement. But there is a still greater mistake even than this in the quotation, for, to get the reading, "My God, my God, how thou dost glorify me!" out of the Chaldee translation, the author substitutes שבחתני for שבקתני, and, by so doing, himself falsifies the accepted utterance. When it is realised that the exclamation handed down by the Evangelist is a Chaldee version of a Hebrew original, it cannot but be admitted that the meaning of the Chaldee is determined by that of the Hebrew, of which it is a translation. This unquestionably is "My God, my God, why hast thou forsaken me?" In the attributed rendering of the author, the Hebrew word he has adopted, to support preconceived views, only signifies "glorify" in the sense by singing the praises (and not by the illumination) of the glorified subject.

I have never met with an example of the use of the Hebrew formula referred to in the sense "My God, my God, how thou dost glorify me!" Will the learned Editors of LUCIFER, or any of its readers, who may have been more fortunate in this regard, kindly point one out to me?

EUPHRATES.

8th June, 1888.

[The above having been sent to the U.S.A. for the author of the "Source of Measures" to reply to his critic, the following is his answer.—ED.]

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NO ERROR.

The paper of "Euphrates" finds me in the country without books of reference. The reason of the novel translation of the words "eli, eli, lama sabachthani" is as follows :—The record of the New Testament must stand as its own original authority, for it has no other authentic source. We are bound, therefore, to

take, accept, and follow, its own statements for what they appear. A Greek sentence, lettering Hebrew words, must be rendered into the Hebrew agreeably to the equivalents of the letters in the Greek text. For instance, and in this case, there are two words in the Hebrew square letter, of the same sound but of differing letters and meanings. One is the Chaldee שׁבק, and the other is the Hebrew שׁבח. The first is, *anglicé,* "*shâbak,*" meaning *to forsake,* and the other is *shâbach,* meaning *to glorify.* These words are the ones supposed to be substituted for the word used in the Psalm, *azabthani,* the pure word for "*forsaken me.*" If in the Greek text, which is the *only* guide and authority we have, the word is found as σαβαχ, it cannot properly be rendered otherwise in the Hebrew, or square letter, than by שׁבח, or, *anglicé, shâbach.* The real word of the Greek text is σαβαχθανι, or in proper conversion שׁבחרני, or *shâbachthani,* which does mean "*glorify me,*" and nothing else. Any change from this must and can be only by perversion, and by way of *correction* of the text of the New Testament. As used in the climacteric sentence of the whole symbolic fabricated drama, it was taken from the Mysteries, and never had any reality whatever. The matter has been referred to very learned Jews, and surprise has been expressed that in such a manifest difference between the indicated word and the correction adopted, *no comment* should exist of the fact of discrepancy, probably because it was thought best to slur, rather than lay the symbolic jugglery bare to the unthinking, ignorant herd.

Difficulties arising from some fatal obstacle to the conversion of a fixed and necessary symbolic real reading, and some plausible popular rendering to cover the symbolism, are not infrequent either in the Hebrew or Greek. Such an one is in the Hebrew sentence descriptive of the first child born into the world, wherein the child is said to be Jehovah himself, and where the vulgar are thrown off by the interposition of the word "*from,*" so as to be read : "a child *from,* or the gift of, Jehovah." A singular instance of a deceptive reading is as follows : Margoliouth, a very learned Jew, calls attention to the fact that the wearing of the "*fringes*" is alluded to in the New Testament—in the case of the woman troubled with an issue of blood, who thought that if she should but touch the "*hem of his garment*" she would recover. Here he says the Greek word is "*Craspedon,*" meaning, literally, if she could but touch the "*fringes*" of his garment. The wearing of the *fringes* had been commanded, to keep one in mind of the laws and ordinances, to obey them, but in lapse of time the custom had merged into a superstitious use, and the fringes were thought of as possessing a potent magical virtue, in, and of themselves. By this the woman thought that she could be cured by the magical virtue if she but touched them. Then it is that perceiving that virtue had gone out of him, the Master said the woman was right, and thus endorsed the *fetich* and its curative property. But by the same reception *the garment* on which the fringes were worn was esteemed to be a much stronger *fetich,* and possessed of magical virtues far more potent than the fringes themselves. This garment had a name, and was specifically called the "*Talith.*" Now in the Gospel of Mark the narrative is such as to set forth the conviction of the magical properties of both the *fringes* and the *Talith* on which they were worn. While the woman having the issue of blood is being cured by her touch of the fringes, the ruler enters the crowd with information

that his daughter is dead, and then follows the recital. He takes the girl by the hand and says " *Talitha cumi,*" "which, being interpreted, is *Damsel, I say unto thee, arise.*" The word " *Talith,*" is from the Hebrew *tâlal,* meaning, *to clothe,* and means " *a garment,*" and that garment on which the *fringes* were worn. It has no such meaning as "*damsel.*" The sentence seems only proper as a command to a person addressed by a proper name, as " *Talitha arise !* " But in the connection, to mention the word itself, was to give the whole symbolism away as embracing the *Talith* and the *Fringes* worn on it, as a favourite *fetich,* therefore the word was given to those who understood, and the paraphrase of "*Damsel, I say unto thee, arise,*" was made for the vulgar and the unlearned. It was an easy and cheap piece of innocent cheat. " Cheap John " miracles were performed with just as much ease as the fabrication of a nursery story to cover a corner puzzle or conundrum. It was of a piece with the story of boys making mud pies and birds, as to which the birds of one of the boys flew away. In another passage of the Greek we read " why are ye baptized for the dead ? " where the broad unmeaning επι is placed in the margin for the real word of the text υπερ meaning "*for the salvation of*" ; the real significance having reference to a custom of vicarious baptism by placing the dead unbaptised on a bench, with a live person underneath. The question was asked of the corpse : " Wilt thou be baptised ? " with answer of proxy " I will," and the live man was baptized υπερ των νεκρων *in place of,* or *for the benefit or salvation of the dead.* So transparent a fraud would not do for an average public, although it might tend to lead the stupid towards " High Church."

But one of the most interesting and instructive pieces of imposition is one recorded outside the sacred record, by a shepherd of the flock. It is contained in the rare history of that king of butchers Constantine, and of that chief theological diplomatist Eusebius. Constantine was a worshipper of Mithras the Sun-God, whose priests were the Magi, who observed the natal day of that God every 25th of December or Christmas day, and whose mode of religion embraced *baptism,* a *eucharistic feast, confession, resurrection from the dead,* and *angelology with hell :* so running on all fours with the Christianity which Constantine co-adapted with his Mithraic observance, that the Christian fathers had to claim, to save themselves from the charge of theft, that the Devil with his usual cunning and astuteness had prophetically anticipated the whole business, to make a claim of priority when the *time should come* to play his little game of thimble rig. Constantine was either for Mithras or the other, agreeably to circumstances, standing as he did half-way betwixt with the difference only of *a name to call the thing by.* His coin bore on the reverse, " *To the invincible Sun, my guardian,*" while the other "*first called Christians at Antioch,*" was lord of the *eighth* day, or the day of that same invincible Sun, called Sunday. Now the time came for this goody-goody to die, and he wished to make the work of his statesmanship complete, in the consolidation of the empire by the cementing influence of a new form of a very old Persian and Hebrew religion, to be enforced by the strong hand of the civil government. For this purpose he is baptised with great pomp and ceremony on Whitsun Sunday. And as to this that arch-fraud Eusebius comments as follows :—"*And on the Pentecostal Sunday itself, the seventh Lord's day*

from Easter, AT THE NOONTIDE HOUR *of the day*, BY THE SUN, *Constantine was received up to* HIS GOD." Let us paraphrase the "lay" of our "Now you see it and now you don't." "The sun being in the South as the beauty and glory of the day—*at high noon—on the meridian*, the soul of our *brother* Constantine ascended in a *plumb line* directly to his God; and so says the master of the Lodge, Amen."

Let us, to close, refer to a bare-faced interpolation in the sacred record, serving by deceiving locution the commendable purpose of a chain to bind the edifice of the Church of Constantine and Eusebius more firmly and compactly together. When the Master says to Peter: "Thou art Peter the stone and on this stone I will found my *Church*, and the gates of Hell," etc., there was nothing known but the Temple and Synagogue. The word Synagogue meant the *Congregation*, whereas it was long after, that the faction or split or separation was formed which was called *Ecclesia*, Church, or *Separatists* or *Come-outers*. Peter must have had an exceedingly stupid vacant look as he listened to this Hottentot statement. Now a very learned divine, who caught on to the difficulty, said that this was evidently an expression used *prophetically*, which by the assistance of the power of the Holy Spirit Peter was enabled to understand by *clairvoyance*. But "Go to! Go to!" It displays irreverence to look too closely into the make-up of the sacred text, for its composition. We should accept the broad ideal without any vain and prurient curiosity.

<div style="text-align: right">J. R. S.</div>

Cincinnati.

NOTE.

"Euphrates" certainly appears to assume a good deal. For why should there be introduced an entirely *imaginary* Chaldee version, of which no one ever heard before? It is generally held that the dialect of Galilee in the time of Jesus was Aramaic or Syriac. Euphrates' substitution of the Chaldee ק *(koph)* for the Hebrew ח *(cheth)* simply makes the whole passage inscrutably unintelligible.

The Editors of LUCIFER regret that they cannot give Euphrates chapter and verse in support of the words in question being a sacramental formula used in initiations, since such details can be found only in *secret* books. But *one* of the said Editors can give her personal assurance that these words *are* so given in the *secret* works on initiation, and that she has herself seen them. Moreover, they were common to all the greater Mysteries—those of Mithra and India, as well as the Egyptian and the Eleusinian. It is not improbable that a careful examination of the old Hindu works, and especially of the Egyptian papyri, may afford evidence of their use in the rites.—[ED.]

THE DEVIL! WHO IS HE?

JESUS, OR THE PRIEST? (John viii. 52; x. 20.)

There are two persons (allegorical impersonations of good and evil), called Jesus and the Devil, who hate one another exceedingly; but whilst Jesus would expose and condemn the sin and spare the sinner that he might live to repent

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THE PATH.

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Where any article, or statement, has the author's name attached, he alone is responsible, and for those which are unsigned, the Editor will be accountable.

A Hindu Chela's Diary.

(*Continued from June Number.*)

" Yesterday I went with Kunâla to look at the vast and curious temples left here by our forefathers.   Some are in ruins, and others only showing the waste of time.   What a difference between my appreciation of these build-ings now, with Kunâla to point out meanings I never saw, and that which I had when I saw them   upon my first pilgrimage, made so many years ago with my father." *   *   *   *   *   *   *

A large portion of the MS. here, although written in the same charac-ters as the rest, has evidently been altered in some way by the writer, so as to furnish clues meant for himself.   It might be deciphered by a little effort,

haired and bearded, as are the other likenesses of Plato, as the son of Ailius writes, that the first debate between Plato and Aristotle was about the hair and beard, because Aristotle, contrary to the fixed habit and style of Plato, was accustomed to have his hair cut and his face shaved.

"Very like to this portrait is that which is seen cut very artistically in Carnelian stone, and which was once in the possession of the first Cardinal of the Holy Cross, which in addition to the likeness of Plato, has also a likeness of the great teacher himself, Socrates.

"On the pillar of Hermes, which has the head broken off, these words are inscribed in Greek : '*Plato was a son of Ariston, an Athenian.*,'

"This also Laertius himself confirms, since he writes that he was born at Athens of his father Ariston, in the village Collyteum, eighteen years after the second year of the Olympiad, Aminia being chief ruler.

"Moreover there is extant in marble, by Fulvius, a portrait of this same Plato of the very highest artistic skill : and there is another very like to this by the same artist cut in a most beautiful Carnelian stone which represents Plato at that time an old man, as it would appear, about eighty-one years old, at which time, engaged in writing extensively he died, one hundred and eight years after the first year of the Olmypiad. In the same Carnelian portrait not only is the forehead of Plato represented very broad on account of which he was called by the name of Plato, prior to which he had been called Aristocles ; but also his shoulders are very broad on which account some wished him to select a name from the Greek language.

"A statue of this same Plato was dedicated in the Academy, the work of a Silanian sculptor of the highest rank ; and Cicero reminds us in his Brutus, of a statue which he had, in these words : 'Then we erected a statue of Plato on the public square, etc., etc.'"

ROTES ON THE GABBALAH OF THE OLD TESTAMENT.

BY PERMISSION OF BRO. J. RALSTON SKINNER (McMillan Lodge, No. 141).

I.

I said in my article on Hebrew Metrology,[1] that the system embracing it was a language, veiled under the Hebrew text of Scripture, and that "to the extent to which the language was known among the Jews, the learning and teaching thereof was called 'CABBALAH.'"

It is a fact that so little is known of Cabbalah that its existence has been denied. It has seemed to possess a like property with that of Prester John, namely, the more and further he was searched for the less he could be found

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1 *Masonic Review*, July, 1885.

and the more fabulous he became.   After the same fashion, as very much was related of wonders connected with Prester John, so the most marvelous things are claimed for Cabbalah.   The Cabbalistic field is that in which astrologers, necromancers, black and white magicians, fortune tellers, chiromancers, and all the like, revel and make claims to supernaturalism *ad nauseam.* Claim is also made that it conceals a sublime divine philosophy, which has been attempted to be set forth in a most confused and not understandable way.   The Christian quarrying into its mass of mysticism, claims for it support and authority for that most perplexing of all problems the Holy Trinity, and the betrayed character of Christ.   The good, pious, ignorant man picks up Cabbalah at will as a cheap, easy and veritable production, and at once, with the poorest smattering of starved ideas, gives forth to the world, as by authority, a devout jumble of stuff and nonsense.   With equal assurance, but more effrontery the knave, in the name of Cabbalah, will sell amulets and charms, tell fortunes, draw horoscopes, and just as readily give specific rules, as in the case of that worthy, Dr. Dee, for raising the dead, and actually—the devil.

No wonder then that the whole affair has been discredited and condemned by the rational and the wise.

Discovery has yet to be made of what Cabbalah really consists before any weight or authority can be given to the name.   On that discovery will rest the question whether the name should be received as related to matters worthy of rational acknowledgment.

The writer claims that such a discovery has been made, and that the same embraces rational science of sober and great worth.   He claims that it will serve to clear up and take away very much of the mysticism which up to this time has been an unexplainable part of religious systems,—especially the Hebrew or Jewish, and the Christian, so much so that the supernatural in those systems will have to give place to the rational, to a very great extent. He claims that that sublime science upon which Masonry is based, is in fact, the substance of Cabbalah,—which last is the rational basis of the Hebrew text of Holy writ.

Cabbalah is inseparably connected with the text of the Scriptures, and an exposition of the inner sense of the same is as John Reuchlin claimed necessary to a right and full understanding of the Sacred Text.   But he saw vaguely, being taught only in a mystic phraseology which was really a blind, and he did not come into possession of the solid, rational grounds of it which he could formulate and impart.   For this reason, though he was right in his general assertion, his scheme failed, and his works in this regard, passed away from the common sense world, and have ever since lived only among the mystics and dreamers.

Like all other human productions of the kind, the Hebrew text of the

Bible was in characters which could serve as sound signs for syllabic utter-
ance, or for this purpose what are called letters.   Now in the first place,
these original character signs were also pictures, each one of them ; and these
pictures of themselves stood for ideas which could be communicated,—much
like the original Chinese letters.   Gustav Seyffarth shows that the Egyptian
hieroglyphics numbered over six hundred picture characters, which embraced
the modified use, syllabically, of the original number of letters of the Hebrew
alphabet.   The characters of the Hebrew text of the Sacred Scroll were
divided into classes, in which the characters of each class were interchange-
able ; whereby one form might be exchanged for another to carry a modified
signification, both by letter, and picture and number.   Seyffarth shows the
modified form of the very ancient Hebrew alphabet in the old Coptic by this
law of interchange of characters.   This law of permitted interchange of let-
ters is to be found quite fully set forth in the Hebrew dictionaries, such as
Fuerst's and others.   Though recognized and largely set forth it is very per-
plexing and hard to understand, because we have lost the specific use and
power of such interchange.   In the second place, these characters stood for
numbers—to be used for numbers as we use specific number signs,—though,
also, there is very much to prove that the old Hebrews were in possession of
the so-called Arabic numerals, as we have them, from the straight line I to
the *zero* character, together making $1+9=10$.   The order of these number
letters run from 1 to 9, then 10 to 90, then 100 upward.   In the third place
it is said, and it seems to be proven, that these characters stood for musical
notes ; so that for instance, the arrangement of the letters in the first chapter
of Genesis, can be rendered musically, or by song.   Another law of the Hebrew
characters was that only the consonantal signs were characterized,—the vowels
were not characterized, but were supplied.   If one will try he will find that
a consonant of itself cannot be made vocal without the help of a vowel ;
therefore it was said that the consonants made the frame work of a word, but
to give it life or utterance into the air, so as to impart the thought of the
mind, and the feeling of the heart, the vowels had to be supplied.   Thus the
dead word of consonants became quickened into life by the Holy Spirit, or
the vowels.

        This being said then :—

        First : The Holy or Sacred Text was given in consonants only, without
any voweling, or signs of vowels.

        Second : The letters were written one after the other at equal distances,
without any separation whatever of distinct words, and without any punct-
uations whatever, such as commas, semi-colons, colons or periods.

        It will be seen at once that a various reading of the text might be had
in many places, both by differing arrangements of letters, and by a differing
supplying of vowels.   A very important difference of reading may be

instanced in the first line of Genesis.   It is made to be read " B'rashith
bârâ Elohim," etc., " In the beginning God created the heavens and the
earth"; wherein Elohim is a plural nominative to a verb in the third person
singular.   Nachminedes called attention to the fact that the text might
suffer the reading, " B'rash ithbârâ Elohim," etc.   " In the head (source or
beginning) created itself (or developed) Gods, the heavens and the earth,"—
really a more grammatical rendering.

What the originally and intended right reading was who can tell ?
It may be surmised, however, that it was made to subserve a co-ordinating,
symmetrical and harmonious working of the characters to unfold and de-
velop their various uses ;—as sound signs to frame a narrative,—as num-
bers to develop geometrical shapes and the numerical enunciations of their
elements, comparisons and applications,—as pictures to show forth ideas in
some accordance with the story told, and finally,—as musical sounds to give
an appropriate song to embrace the whole.   The whole compass was to
embrace rational proof, through operations in nature, of the existence of
that Divine Contriving Willing Cause which we call God.   But be this as it
may there was no end of effort for thousands of years, by the best trained
and most learned men of the Hebrews and Jews, to give and preserve what
had to be decided upon by them as the right reading of the Sacred Text.
This reading was certainly perfected as we have it, as early as the time of
Ezra ; and as to the various readings which offered, the present was perfected
as the orthodox one,—or that one to be received by the profound vulgar.

It must be known that it is claimed for the Sacred Scroll by the Hebrew,
that no letter in it has ever been changed, and that even the marginal read-
ings were part of the original text for a varied use thereof, in perfect accord
with the object of its writing.   Unlike the Christian Gospels, with the
Hebrews and Jews, alike, the original text was sacredly precious as to its
every and very letter, and had to be thus preserved.   To the contrary of this,
the Gospels can be changed in their reading to suit the currently changing
ideas of what the same should be.   The marks to indicate " *right reading* "
were after the time of Ezra gradually made public, were called *Massorah*,
and finally, edited by Ben Chajim, were published by Bomberg, in Venice,
in the fifteenth century.

After this fashion and mode the books of the Old Testament were pre-
pared and read by the Jews long before the time of the Christian Era.
They were thus accepted at that time ; and afterwards by the Christian
World:—so that, to day, we accept the record, as thus prepared by the
ancient orthodox Jewish and Hebrew Church.

Whatever may have been the Jewish mode of complete interpretation of
these books, the Christian Church had taken them *for what they show on
their first face*,—and that only.   As they may be read orally, so is their

fullest meaning to be gathered from the oral reading ; and by means of what the sound of the words may convey to the ear the full and complete intendment of meaning is to be had.   The Christain Church has never attributed to these books any property beyond this ; and herein has existed its great error.

Now, as said, the substance of the Cabbalah is a rendering of the secret doctrine of the Old Testament, and this is not only asserted, but an argument is raised about the matter in the following set terms: "If the Law simply consisted of ordinary expressions and narratives, ex. gr. the words of Esau, Hagar, Laban, the ass of Balaam, or of Balaam himself, why should it be called the Law of Truth, the perfect law, the true witness of God? Each word contains a sublime source, each narrative points not only to the single instance in question, but also to generals." (Sohar iii, 149 b). " Woe be to the son of man who says that the Tora (Pentateuch) contains common sayings and ordinary narratives. * * There is the garment that every one can see, but those who have more understanding do not look at the garment but at the body beneath it; while the wisest, the servants of the Heavenly King, those who dwell at Mount Sinai, look at nothing else but the soul (i. e., the secret doctrine), which is the root of all the real Law." (Sohar, iii, 152 a).

Now it is a strange thing, that in the quotations made by Dr. Ginsburg in his Essay,[1] can be gleaned a series of data wherewith to arrange a philosophy of Cabbalistic teaching, covered by the names and remarks on the Ten Sephiroth.   The "*trick of the thing*" lays plainly before the eyes in its development, and yet is perfectly concealed from unintelligent observation. In other words, the very text is laughing at the worthy doctor, while he is criticising it with an apparent aspect of superiority and authority. The same thing is to be found in the text of Piutarch's Morals, by C. W. King, and in many other texts where the like phenomenal mode is practiced.   It in fact is said that the Cabbalah is evolved by "*hints scarcely perceptible,*" and the cunning of the concealment is something to admire and laugh at. The description in Sohar of the mode of communication tends to explain what has been said:

"The opinion that the mysteries of the Cabbalah are to be found in the garment of the Pentateuch is still more systematically propounded in the following parable: 'Like a beautiful woman, concealed in the interior of her palace, who when her friend and beloved passes by, opens for a moment a secret window and is seen by him alone, and then withdraws herself immediately and disappears for a long time, so the doctrine only shows herself to the chosen (i. e., to him who is devoted to her with body and soul); and

1 The Cabbalah, its Doctrine, Developement and Literature.

even to him not always in the same manner.   At first she simply beckons
at the passer by with her hand, and it generally depends upon his under-
standing this gentle hint.   This is the interpretation known by the name of
rāmāz.   Afterwards she approaches him a little closer, lisps him a few words'
but her form is still covered with a thick veil, which his looks cannot pene-
trate.   This is the so-called *dārausch*.   She then converses with him with her
face covered by a thin veil; this is the enigmatic language of the *hāgadah*.
After having thus become accustomed to her society, she at last shows her-
self face to face and entrusts him with the innermost secrets of her heart.
This is the secret of the Law, *sod*.   He who is thus far initiated in the mys-
teries of the *Tora* will understand that all these profound secrets are based
upon the simple literal sense, and are in harmony with it, and from this
literal sense not a single iota is to be taken and nothing is to be added to
it."   (Sohar, ii, 99.)

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his plaintive warbling, shed tears in the garden, soft as the dews of heaven."

(CONTINUED.)

SAADIS' BOOSTAN (FRUIT GARDEN OR GARDEN OF PLEASURE) Continued:

CONVERSATION BETWEEN THE CANDLE AND THE MOTH :

> I remember one night lying sleepless in bed,
> That I heard what the moth to the fair candle said :
> "A lover am I, if I burn it is well !
> Why you should be weeping and burning, do tell."
> "Oh my poor humble lover ! " the candle replied,
> " My friend, the sweet honey away from we hied.
> When sweetness away from my body departs,
> A fire-like *Farhads*[1] to my summit then starts."
> Thus she spoke, and each movement a torrent of pain
> Adown her pale cheeks trickled freely like rain.
> " Oh, suitor ! with love you have nothing to do,
> Since nor patience, nor power of standing have you.

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1 *Farhad* was the youthful lover of *Shirin*.

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THE PATH.

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STAR COLORS AND ANIMAL MAGNETISM.

It is well known that yellow is the complementary of blue, and red of green, color, and it struck me that, relating to this subject, the remarks of Mr. Isaac Sharpless, who is an undoubted authority in astronomical matters, are of some importance. Writing from Haverford College Observatory, June 3d, instant, he says :

" The question of star colors has been receiving attention from the hand of an English gentleman, W S. Franks. He has examined carefully the colors of a list of 1893 of the brightest stars, with especial reference to the distribution in the heavens of the different colors. He finds 962 white stars, 614 yellow, 168 orange, 10 red, 15 green, 59 blue, 58 purple and 7, for some reason, have no colors given. He finds that the constellations which contain a large percentage of white stars are in or near the Milky Way, and wherever stars are closely associated together ; while the yellow and orange stars are most plentiful in large straggling constellations.

in front and there was sitting another friend of Kunâla with the same ex-
pression of the eyes as he has   I also recognized him as one of those who
was in the room underground.   Kunâla seated himself and I stood before
them.   We stayed an hour and saw a portion of the place.   How very pleasant
it is ! And inside he has a small room where he leaves his body when he him-
self moves about in other places.   What a charming spot, and what a delightful
smell of roses and various sorts of flowers !   How I should wish to visit that
place often.   But I cannot indulge in such idle dreams, nor in that sort of
coveteouness.   The master of the place put his blessing hand upon my head,
and we went away back to the Rest House and to the morrow full of struggles
and of encounters with men who do not see the light, nor hear the great voice
of the future ; who are bound up in sorrow because they are firmly attached
to objects of sense.   But all are my brothers and I must go on trying to do
the master's work which is only in fact the work of the Real Self which is All
and in All."

Rotes on the Gabbalah of the Old Testament.

By Permission of Bro. J. RALSTON SKINNER (McMillan Lodge, No. 141).

II.

Ginsburg and others tell us that Raymond Lully and John Picus de
Mirandola had acquired knowledge of the Hebrew and the Caballah.
Mirandola studied Hebrew and Cabbalistic theology under Jochanan
Aleman, who came to Italy from Constantinople, and—"found that there is
more Christianity in the Cabbalah than Judaism; he discovered in it proof
for the doctrine of the Trinity, the Incarnation, the Divinity of Christ, the
heavenly Jerusalem, the fall of the angels, the order of the angels," and so
on, and so on. " In 1486, when only 24 years old, he published 900 *theses*,
which were placarded in Rome, and which he undertook to defend in the
presence of all European scholars, whom he invited to the Eternal City,
promising to defray their traveling expenses.   Among the theses was the
following: ' No science yields greater proof of the Divinity of Christ than
magic and the Cabbalah.' "

Through Picus de Mirandola, Reuchlin became aware of this phase of
Hebrew philosophy or theosophy, as, by a school of the rabbins, a recog-
nized appurtenant to the Hebrew Scriptures.   He not only examined into
the Cabbalah to satisfy his thirst for facts of literature, but, on investigation,
became a convert to the system,—" within two years of beginning to learn
the language, published (1494) his De Verbo Mirifico, and afterwards
(1516) with more matured learning, his De Arte Cabbalistica. " And thus

the joint efforts of Mirandola and Reuchlin established a field of literature, of the Cabbalah, which has always flourished, and will continue to flourish so long as our civilization shall last.

It is interesting and useful to place this great fact, but it is a matter of especially great weight and value that the knowledge of the Cabbalah was sprung upon the world of letters, with, and *as an essential part of* the Reformation itself. Not that the philosophy of the Cabbalah became engrafted into the study and development of Hebrew (and consequently Christian) theosophy;—for, because of lack of knowledge of what the Cabbalah really was, such could not be the case,—but it was entitled so to be, and the assertion of its existence as a real element of Scripture was, even then, so strongly and enduringly made, that, though an unknown quantity except by name, it has ever since stood firmly, and ready to have such claim made good:—with a vitality that has outworn four hundred years of patient waiting.

Of course there was a field of Jewish Cabbalistic literature,—not open, but confined, for the most part, as a kind of sacred mystery, within narrow and restricted limits, even among the Jews themselves. It was of the same nature with what is called, to-day, The Speculative Philosophy of Free Masonry, an ever seemingly substantive embodiment out of surrounding shadowy mists and mental fogs, wherein a doubt always exists whether after all there is in the nebulous matter of the mist itself anything from whence substance may congeal; or, it may, for illustration, be compared to the city of King Arthur, before whose gate Gareth, standing, says: "But these my men—(your city moves so wierdly in the mist),—doubt if the King be King at all, or come from Fairy land; and whether this be built by magic, and by fairy kings and queens, or whether there be any city at all, or all a vision." It is necessary to make a brief mention of this literature with its sources; both that these may be known, and that a foundation may be laid for what is stated as to the reality of Cabbalah, and its significance.

There is almost no teaching of the Cabbalah in the English language except the Essay by Christian D. Ginsburg, LL. D., to which we have referred. Dr. Ginsburg says: "It is a system of religious philosophy, or more properly, of theosophy, which has not only exercised for hundreds of years are extraordinary influence on the mental development of so shrewd a people as the Jews, but has captivated the minds of some of the greatest thinkers of Christendom in the sixteenth and seventeenth centuries, and which claims the greatest attention of both the philosopher and theologian."

It is faintly claimed that some statements applying to Cabbalah are to be found in the Talmud; but apart from this we have:—(1) The Commentary on the Ten Sephiroth, by R. Azariel ben Manachem (1160—1238), who was a pupil of Isaac the Blind, and master of the celebrated R. Moses

Nachmanides, (2) The Book Sohar (Light), or Midrash, Let there be
Light, claimed to have been a revelation from God, communicated through
R. Simon ben Jochai, A. D. 70-110, to his select disciples.   This book has
been pronounced by the ablest critics to have been a pseudograph of the
thirteenth century,—the composition of Moses de Leon, who lived in Spain;
who, by the admission of his wife and daughter after his death, first pub-
lished and sold it as the production of R. Simon ben Jochai, and (3) The
Book Jetzirah or Book of Creation,—of unknown age and authorship, but
mentioned as early as the eleventh century in the Book Chazari, by R.
Jehudah Ha Levi,—as the literary sources for the entire system and scope
thereof, so far as disclosed.   It is from these sources that the entire volume
of Cabbalistic literature has had rise and development.

From these sources, and the numberless treatises and expositions
thereon, the history of the subject matter and containment of Cabbalah is
laid down as follows :   It was first taught by God himself to a select com-
pany of angels.   After the fall the angels taught it to Adam.   From Adam
it passed to Noah, thence to Abram, the friend of God who carried it to
Egypt.   Moses, who was learned in all the wisdom of Egypt, was initiated
into it from the land of his birth.   He covertly laid down the principles of
its doctrines in the first four books of the Pentateuch, but withheld them
from Deuteronomy ("this constitutes the former the '*man*' and the latter
the '*woman*'").   Moses initiated the seventy elders, and they again passed
the sacred and secret doctrine down to the heads (continually imparting the
same) of the Church of Israel.   David and Solomon were adepts in it.
No one dared to write it down till the supposititious Simon ben Jochai, who
really lived and taught, as one of the most celebrated doctors, at the time of
the destruction of the second temple; and his teachings are claimed to con-
stitute the Book of Sohar, published, as already said, by Moses de Leon of
Valladolid, in Spain.   But Ben Jochai, or whoever worked under his name,
though he wrote and published, as said, covered the true docrine by veils,
so that no one but an initiate, or, as the saying runs, " by the gift of God,"
could penetrate behind them ;—though the veils of the words still plainly
held the secret doctrine, to those who could see.   The Cabbalah, as an ex-
position to the Sacred Text of Holy Writ, was claimed to contain the
Wisdom of God in every branch and department of His working,—and all
terms and descriptions were exhausted to express the ineffable reward to him
who might be permitted to penetrate behind the veil, either by initiation or
" by the gift of God;" satiating every function of enjoyment, and affording
an indescribable bliss, in the ultimate possessions of the Divine conceptions.

More definitely:—The exposition of the system treats of the impersonal
First Cause manifesting within the limits of the finite. " Before he gave
any shape to this world, before he produced any form, he was alone, with-

out a form and resemblance to anything else.[1] Who, then, can comprehend him, how he was before the creation, since he was formless? Hence, it is forbidden to represent him by any form, similitude, or even by his sacred name, by a single letter or a single point; and to this, the words, ' Ye saw no manner of similitude on the day the Lord spake unto you ' (Deut. iv. 15) —*i. e.*, ye have nor seen anything which you could represent by any form or likeness,—refer " (Sohar 42 b, 43 a, Sec. AB) :—And this shows clearly enough that the supposed sacred names of Scripture do not have reference to the Impersonal First Cause, as its essential designations, but rather to its creations. * * Then—"The creation, or the universe, is simply the garment of God *woven from the Deity's own substance* (The Impersonal manifesting in the cosmos, in modes to be expressed by the sacred names and otherwise). For although, to reveal himself to us, the Concealed of all the Concealed, sent forth the *Ten Emanations* (the Ten Sephiroth) called the Form of God, Form of the *Heavenly-Man*, yet since even this luminous form was too dazzling for our vision, it had to assume another form, or had to put on another garment which consists of the *universe*. The universe, therefore, or the visible world, is a further expansion of the Divine Substance, and is called in the Cabbalah, ' *the Garment of God.*' " (Sohar i, 2 a)— " The whole universe, however, was incomplete, and did not receive its finishing stroke till *man* was formed, who is the *acme of the creation*, and the macroscosm uniting in himself the totality of beings,—' the heavenly Adam,' *i. e.*, the Ten Sephiroth, who emanated from the highest primordial obscurity (The Impersonal First Cause), created the *earthly Adam.*" (Sohar ii, 70 b). This is more definitely expressed in another place, where it says :—" Jehovah (for which stands the letter *jod*, or *j or i*) descended on Sinai *in fire*," the word for which is *a-sh* fire. Let the *j, or i*, the signature for Jehovah, descend in the midst of this word, and one will have *a i sh*, which is the Hebrew word for *man* man ; thus *man* became out of the *Divine fire*——" Man is both the import and the highest degree of creation, for which reason he was formed on the sixth day. As soon as man was created every thing was complete, including the upper and nether world, for every thing *is comprised in man.* He unites in himself all forms." (Sohar iii, 48 a)—"But after he created the form of the Heavenly Man, he used it as a chariot (Mercabah) (wheels, circles) wherein to descend, and wishes to be called by this form, which is the sacred name Jehovah." Sohar i, 42 b, 43 a, section A B.)

It is to be observed especially, as to the ground work of the Cabbalah, that the first manifestation was in the " *Ten Sephiroth*," or Emanations, so

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1 It is interesting to compare the *Brihadaranyaka-Upanishad*, 4th Brah., with this : "In the beginning this was Self alone, in the shape of a spirit. He looking round, saw nothing but his Self."—[Ed.]

called, out of which came the "*Heavenly Man*"; and the human or earth man represented these Ten Sephiroth in himself. "The lower world is made after the pattern of the upper world ; everything which exists in the upper world is to be found as it were in a copy on earth ; still the whole is one." (Sohar i, 20 a.)

Thus it is that the compass of the Cabbalah, by Sohar, is idealized in the form of a *man*. This man represented the combination of the Ten Sephiroth, or, as systematically called, *Emanations*, in which as a unity the whole cosmos existed in its seggregated detail ; and through which all knowledge thereof, physically, psychically and spiritually, was to be had, in passiveness and in activities ;—and through which these activities, as of all potencies— as of angels and powers,—had their special existences. These Emanations had names of qualities, as Beauty, Strength, Wisdom, etc., etc., each name being located upon one of nine parts marked out on the form of the man ; each of which was called a *Sephira*. The totality of the man being taken as *one*, this added to the nine made ten ; and as a number this was the letter *jod*, already spoken of. The locations of these Sephiroth (shown as circles) are united one with another, so that one Emanation may flow into another ; one into all, and all into one ;—and the 22 letters of the alphabet with the 10 vowel sounds, are found therein, or thereby ; and these are called the "*thirty-two ways or canals of Wisdom*"; and as these letters stood also for numbers, there is in this containment every possible mode of expression *by word and number*. The exposition of the Old Testament, especially the Thora, in the secret or esoteric way, is claimed under this statement ;— that is, by numbering the letters of words, and by their permutations and changes of positions ; so that this is one of the functions of the Emanations or Sephiroth ; and a mighty one for disclosing the Wisdom of God.

The Book Jetzirah deals especially with these letters and numbers : "*By thirty-two paths of secret wisdom*, the Eternal, the Lord of Hosts, the God of Israel, the living God, the King of the Universe, the Merciful and Gracious, the High and Exalted God, He who inhabiteth eternity, Glorious and Holy is His name, hath created the world by means of numbers, phonetic language and writing."

The Commentary on the Ten Sephiroth, by R. Azariel Ben Menachem, as its name implies, is directly in consonance with the Sohar.

As to the Book Jetzirah, Dr. Ginsburg says : "The *Book Jetzirah*, which the Cabbalists claim is their oldest document, has really nothing in common with the cardinal doctrines of the Cabbalah. There is not a word in it bearing on the En Soph (Impersonal First Cause), the Archetypal Man," and so on, and so on. But here the doctor is at fault for this reason :—The word "*Sephiroth*" means "*Numbers*," and the *Ten Sephiroth* means the Ten Numbers ; and in the Cabbalistic way these are composed out of a geomet-

rical shape. The circle is the first *naught*, but out of this naught develops a straight vertical line, viz : the diameter of this circle. This is the first *One ;* and having a first one, from it comes 2 and 3 and 4 and 5 and 6 and 7 and 8 and 9,—the circle or naught and its diameter one, the embracement of all together, forming the comprehensive *Ten*, or Ten Numbers, Ten Sephiroth, Ten Emanations, the Heavenly Man, the great Jah, of the ineffable name. Hence the contents of the book Jetzirah are of the very essence of the other two, and all are one.

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(CONTINUED.)

NOTES ON *JELALUDDIN RUMI* -Continued:

   —Space forbids us to dwell any longer upon the miracles of this wonderful man of whom *Shems Tebreez* once asserted, in Jelal's College, that " whosoever wished to see again the prophets, had only to look on Jelal, who possessed all their qualifications ; more especially of those to whom revelations were made, whether by angelic communications, or whether in visions ; the chief of such qualities being serenity of mind with perfect inward confidence and consciousness of being one of God's elect. Go and look upon Jelal, if thou wish to comprehend the signification of that saying ' *the learned are the heirs of the prophets*,' together with something beyond that, which I will not here specify."

   We must add a few passages from Jelal's lectures, &c. These were his last instructions, "*the best of mankind is he who benefiteth men*" and, "*the best of speech is that which is short and to the purpose.*" Jelal once at a funeral spoke thus : " The ordinary reciters, by their services, bear witness that the deceased lived a Muslim. My singers, however, testify that he was a Muslim, a believer, and a lover of God." He added : " Besides that ; when the human spirit, after years of imprisonment in the cage and dungeon of the body, is at length set free, and wings its flight to the source whence it came,

The Doric, Ionic and Corinthian Columns

IN GRECIAN ARCHITECTURE.

By Bro. J. RALSTON SKINNER, (McMillan Lodge, No. 141.)

Vitruvius, who wrote in the time of the first Cæsars, gave to the world the rules of construction of the Grecian Temples to the immortal gods. One of his principal themes was the subject of measures; and part of this, by reason of ignorance, has been unfavorably criticised, though always commented on. Part of this one related to the proportions of *a man*,—as that *his height* was *six times* the length of *the foot;* whereas, as a general factor for the relation, *seven times* that length will be found to be very accurate. The form of man being considered as the reflection or image of the Divine Creator, it was taken in its proportions as the proper source from whence measures were to be derived,—as the digit, thumb's bread.h, span, cubit, and so on. Then, since there should be harmonic co ordination in all things, as being at last referable to One Creative Idea, man being the express image of the same, all conceptions of beauty, grandeur, rightness, holiness, and the like, should somehow be referable back as related and pertaining to that system of measures and their symbolic uses; precisely the same as Masonry teaches, under its own modes of measures and their symbolic applications.

In the article in the July number of the REVIEW, on Hebrew Metrology, reference is made to the use of the man (Man Even Johovah) measure 113, as being the diameter of a circle whose cir-

cumference is 355,—the use of which Vitruvius referred to in a veiled way, as carried along by intendment with the more ordinary measures of the cubit and its divisions. 335 being the number of days in the lunar year the significance of the use is astronomical; and that as seen upon the geometrical basis of the circle and its diameter. It was upon this use that Vitruvius gave his proportion of the height of a man to the length of his foot, about which much dissenting comment has been made. But he did this knowingly, as an adept or secret master, and for physical fact made the proper correction after the first proposed use. He says the height of the Doric column being *six* times its diameter, this was changed in converting the Doric into the Ionic by giving to the column a height of *seven* times its diameter; which may be taken as a general measure of great accuracy.

Let us give the construction, under the esoteric rules of Vitruvius, of the temple and its columns.

First: The temple in its greatest embracement should be an oblong of two squares, as *the invariable law*. This was the pattern of the King's Chamber of the Great Pyramid of Egypt, then next in point of time, of the Tabernacle of Moses, next of the Holy of Holies of the Temple, as divided by the wings of the Cherubim, as also of the porch of the same,—divided as to its length of 20 cubits into 3 equal spaces by the pillars Jachin and Boaz, the distance between them being diameter to a circle having a circumference, in Masonic feet, of 360 degrees. So the rule was not of Grecian invention but derived from the Hebrews; who, in turn, had the same in two lines of descent, one from the head of the Persian Gulf by way of Babylon, and one from Egypt. The succession of this rule by right of inheritance and practice belongs to-day to Freemasonry.

Second: As to the columns, they were after all, to be read by the ideal measures of *a man*, while constructed in terms of the real measures of the cubit and its parts. The first use was of a man lying on his back, with his limbs outstretched, so that, the navel being taken as a center, a circumference line would touch the extremities of his fingers and toes. It appears that Leonardo da Vinci made a study of this rule, and among his manuscripts there was lately found a drawing of this crucified, or crossified, man; a copy of which is to be met with in a late pamphlet by Dr. Fletcher, of Washington, on the true proportions of the human form.

This was the circular base of the column, as interpreted by symbolism and numbers from the form of *a man;* and the numerical proportions were to be had from the Hebrew term for man ;—from whence the Grecian idea. As said, the word *man* in Hebrew, gives the small or characteristic numbers of the letters of the word as 113. Thus, the diameter being taken as that of a man, irrespective of its measures in cubits and part thereof, the circumference of the column would be 355, or the number of days in the lunar year.

This circle divided into twelve equal parts by six diameter lines of 113, each, (the going "*to and fro*" of the raven in the Noah description) would show division of this lunar year into twelve months, the aggregate value of the same lines being 113+6=678 ;—which, as said, was the value of the description of the raven in the word "*and-the-raven*" in the Flood narrative.

By Vitruvius, the Doric column, representing the height of a man, should be six times the length of his foot, and its diameter being 113, six times this, taken as the length of the foot where the height comes in question, would be 678, or this very number. But as to this, Vitruvius goes still further to determine the matter in this way, —as follows:

The height of the Doric column being six times the length of the *foot*, he says this was changed in converting the Doric into the Ionic column, by making the height seven times this length,—and, after that, another change was made in the further conversion into the Corinthian, by making this last column eight times the length of the foot, or diameter ; by which we see that he is making use, *seriatim*, of the numbers 6 and 7 and 8 to define the intended or proposed use of 113+6=678, in a matter wherein he could not speak plainly.

Third : But while following the precedent already set in the Mosaic books in the narrative of the dove and the raven of the Flood, for Grecian architecture, he does not stop here, but works the column constructively, by these veiled numbers, taken to show the ineffable name of the Hebrew Jehovah. He says, the column should have twenty flutings. From this, the circumference, or 355, is to be divided by 2, (20), which gives a circular value for each fluting of $\frac{355}{2}$=1775. At Mount Sinai there were 603550 offerings of a *bekah*, apiece, made to construct a house for Jehovah to reside in, in the midst and in the hearts of his people. 100 talents of this sum, or 600000 *bekahs*, were used for the "*sockets of the pillars*,"

and then, there being two bekahs to the shekel, it is said, "of the 1775 shekels remaining, were made the *joinings of the pillars*" of this residence. The measuring *man ratio* of 113 to 355, if multiplied by 5 will give 565 to 1775, or this very number in the last term, of which, as a circumference of a circle 565 is the diameter. But 565 can be placed under its equivalent form of 56.5+10,—and in this last form these numbers read *jod hé vav hé*, or the Hebrew name Jehovah:—and thus we read His name, and actually see Him as residing in the house of a circle as the numerical enunciation of its diameter line. Divide this circle into equal parts (355+5=1775). Join the points of division by right lines and the *blazing star*, or the pentalpha, or seal of Solomon, (C. A. King's Gnostic Gems) will be produced; and this was probably its chief or first symbolic application.

So here, with the Greeks, by use of the same ratio, we find the same results produced by the flutings of the column, on the *man-measure*, for base and height, under the constructive rules of Vitruvius.

Fourth :—This column in its man-measure diameter reads 113, and this at its top as well as bottom. Above the top was the *capital*, with its ornamentation of *volutes*. If one will look into " The Landmarks of Freemasonry," by the Rev. Dr. Oliver, instead of a front view he will find a showing of the corner presentation of such a *capital*, where the ends of the volutes show the representation of the *horns of a ram ;* and this was to indicate the sign of Aries in the constellations. The first sign preceding this was Pisces, or The Fishes. The Passover feast of the Hebrews was a movable one within certain fixed limits regulated by the lunar time of weeks and by the sun " entering into the head of the ram," or Aries (Al-Chasari); and this is the Easter feast of the Christians.

These two signs, so controlling through so many ages, were those of Pisces, or the Two Fishes, and Aries ; and they have always represented the bursting forth of nature into the new spring of life, or the passing over from the darkness of Egypt or death unto a resurrection from the dead.

Now the sign of the Fishes is of Hebrew origin (Seyffarth says, not only so but that the Hebrew alphabet took its origin in the signs of the constellations). The Hebrew word for *fish* is N U N (our English *Nun*, a female devotee, and shown in the picture of Mary in the

"*Vesica Pisces*"), and the characterizing or small values of the letters of the word read 565 (or the basic values of the name Jehovah, out of Hauvah or Eva, as already given). Two Fishes then, or the sign of that constellation would be 565 multiplied by two, which would be 1130, or denoted by the number 113 (for the use of the cypher may be disregarded); and as seen 113 is read at the top of the column as the diameter thereof. The junction of the top of the column with the base of its *capital* served then to indicate that of the constellar signs Aries and Pisces.

The laws of architectural interpretation of the Grecian temple were borrowed from the Hebrew Biblical source; and the column so perfected read the Semitic story of the Dove and Raven of the Flood,—of the Hebrew Jehovah in His dwelling place, marked by the blazing star as to the joinings of the pillars,—and of the point in the constellations marking the Passover feast and Christian Easter, viz., that between Aries and the Two Fishes. As has already been said, the measure of time used as to this point was and is called the Metonic Cycle.

Seyffarth says that John the Baptist said of Christ, "He must increase but I must decrease;" by which it was signified that John was born on the 24th (22d) of June, while Christ was born on the 24th (22d) of December,—all which shows astronomical allusion to the sun passing the solstices.

The Dove, the Raven, the Fish, and the Man were very ancient Greek symbols. Two Doves from Egypt alighted on the sacred oak of Dodona in Epirus, and by oracular voice established the first theogony for Greece, by giving *names* to the gods. Here it was that Deucalion, the Greek Noah, descended from the ark of the Deluge and made sacrifice to God. His immediate descendant was Helen (or Hellen) the father of Ion, who gave the name of Ioneans, or Doves, to the Greeks. Helen is but a borrowed Grecian use of Hebrew letters, viz., *hé* (5); *lamed* (30 or 3) with a dagesh point to double the letter, and *nun* (50 or 5); which word or name carries in it the small or characterizing numbers 355 —while if the *lamed* be doubled by dagesh, the word, or Hellen, will give 565, or the Eva or Jehovah numbers of the Hebrews. The son of Hellen was Ion or Iona, the Hebrew word for *Dove*. While these symbols stood at the source of the Grecian religious philosophy and mystery, they play the initiative part in the Christian. Jesus, the Hebrew word

for *man* and *fire* (the old Greek Iason, *physician* and *healer*), with the Greek suffix, stood in the water up to his head, thus becoming the type of the Fish-man. *John (Dove) His baptiser said, "and I saw the Holy Spirit descending from Heaven like a Dove (John) and it abode upon him." John (Dove) the Evangelist, a disciple of that other John saw this. So there were three Johns (or Doves) who participated in this scene. See the three triangles on the chair above the head of the W. M. in the F. C. Degree. These are the representatives of the three Johns, or Doves, viz., 71 and 71 and 71, or together 213, the word *Head* in Hebrew *Râsh*, or 35.5×6; the diameter to compare with which is $11.3 \times 6 = 678$. These three Johns are derived from the 3 and 5 and 7 steps that are taken to attain to the presence of the W. M. *"in the East."* The sum of the small values of this *Head* of the W. M. are $2 + 1 + 3 = 6$, each of his hands has 5 fingers, together 10,—so that, the representative of 10 and 5 and 6 and 5 in this symbolic picture he sits as Jehovah or Messiah, with the glory of the Doves as the Holy Spirit above him :—and herein was the voice (Bath-Col), audible through the vowels of the Ineffable Name.

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*The name John is but a use of the Hebrew word Ion or Ionah, Dove. The words Jonah—Ionah and John are one and the same.

The Identification of the British Inch as the Unit of Measure of the Mound Builders of the Ohio Valley.

Paper Contributed by J. RALSTON SKINNER, Dec. 1, 1885, to The Cincinnati Society of Natural History.

Very fortunate conditions seem to make the identification of the *unit of measure* of the Mound Builders of the Ohio Valley both simple and easy of demonstration. One may go further, and say *certain* of demonstration, because certainty rests upon but two matters of fact, which, on examination, will probably be pronounced established.

The first of these facts is this : That the measures of a great number of these mounds in the river valleys, and on the river terraces of the State of Ohio, as reported by E. G. Squier and E. H. Davis in their great and now somewhat famous work, " Ancient Monuments of the Mississippi Valley," published by the Smithsonian Institution in the year 1848, are to be relied on. It is but fair to say that they are reliable ; both from the reiterated statements of these gentlemen and because the Smithsonian Institution gave the work place in its archives. Independently of these considerations the reported measures of these gentlemen contain intrinsic evidence that they were correctly taken, so strong, that we may adopt them as established data for the purposes of our investigation. When this evidence is coupled with (1) the character of the men reporting the measures, (2) the fact that their labors were approved of by and confirmed by Col. Charles Whittlesey, Topographical Engineer of the State of Ohio, whose surveys of these mounds were made officially, under an act of the State of Ohio, for geological and topographical surveys, and contributed as part of the work of these gentlemen, after they had, as to many, verified and confirmed them, and (3) the acceptance and approval of the institution named, it seems but reasonable to accept it as decisive of the matter. This intrinsic evidence will be quite elaborately given, with a number of quotations as to the character of the surveys, and as to the impressions of the surveyors, taken here and there from their descriptions.

The second of these facts is as follows : The key to this matter is a *stone measure* now in possession of The Cincinnati Society of Natural History. This stone was found in and dug out of the Sixth and Mound street mound in the City of Cincinnati at the

time of its removal, by Mr. C. P. Gridley, now of the City of Spring-field, Ohio. He deposited it in the collection of The Western Academy of Natural Sciences, where it was labeled as contributed by him; the original label being now on the stone. The collection of The Western Academy of Natural Sciences, this stone being part of it, passed into the possession of the present society. This is fully verified by the statement of Mr. Gridley himself made to Dr. H. H. Hill, an officer of this society, December 5th, 1878, on the occasion of his (Mr. Gridley) coming to this city (Cincinnati) for the purpose of obtaining this stone. The statement is so important that it is made a part of this paper in Appendix A. The elliptical mound in which this stone was found is the same in which was recovered the "*Gest Tablet*" as to which so much has been said and written. (See Appendix C.)

The writer of this paper, while making investigation into the origin of our British measures, was amazed at the ancient universal use of like architectural symbols all over the world in all lands. Very especially at the almost identity of geometrical display of the Mound Builder's remains with that of the old Egyptian and Hebrews. While examining into this matter in the works of Squier and Davis, spoken of, he was astonished to find that the reported measures given in British feet were such in numbers that a system was disclosed in the general construction, which system could not have been disclosed had any other unit of measure than the British inch been used. So impressed was he with the fact, and yet so impossible did it seem, that in a work, entitled "Source of Measures," published in the year 1875, he made the following remark: "Mounds showing British measures. In searching in the works of Squier and Davis a great number of measures were found, and it was very observable that the English measures seemed so fitting that it was difficult to free the mind from dwelling on their use in the original construction. These measures seemed to be multiples of 3, 4, 6 and 12, and kept running toward the value 360. These facts were noted at the time as curious; but any possible connection seemed, even as it does now, but a wild freak of the imagination, and the matter, though noted, was dropped"

It happened fortunately, that Mr. R. B. Moore, a member of The Cincinnati Society of Natural History, and former President thereof, became interested in the various discoveries set forth in the

works of the writer as to the origin and ancient use of the British measures; as also in the suggestion of their use in the construction of the Mound Builder remains. Having his attention turned that way, it occurred to him to take the measure of the Gridley stone, the outlines of which are here given:
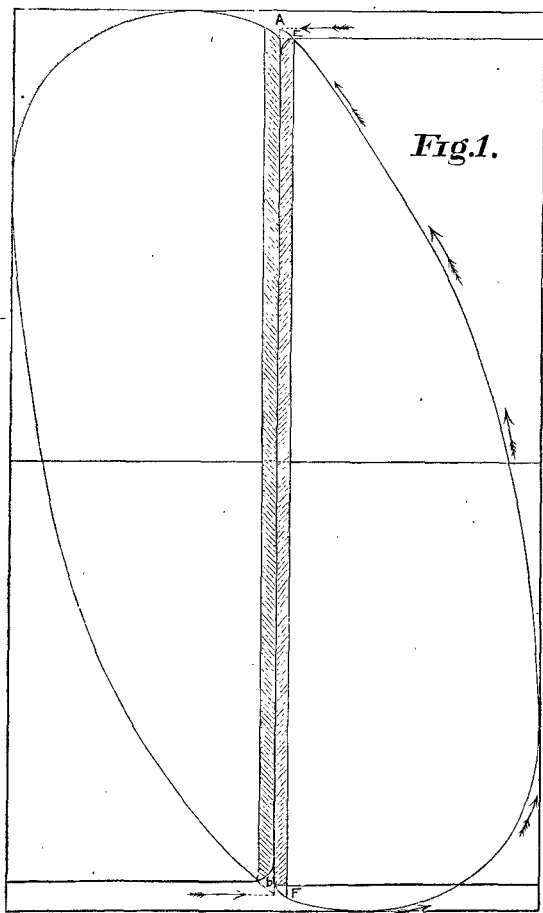

Fig. 1. Around the curve from *b* to A is 12 standard inches. The right line of the face from A to *b* is 9 inches. From E to F an unbroken right line is also 9 inches. The figure is reduced *one-half* from an exact *fac-simile*.

As seen it is the symmetrical half of a nearly perfectly proportioned ellipse, the straight edge or line being the diameter there-

of. On measuring the straight edge, or diameter line, Mr. Moore found it to be precisely nine (9) standard inches, and on measuring the curved edge, or half circumference of the ellipse, he found it to be exactly twelve (12) inches. That is, the measure was that of a folded "*two-foot rule,*" but in such form of presentation that the foot, or 12 inches, inseparably connected itself with the measure of 9 inches. The extreme ingenuity of the device certainly does honor to the Mound Builders, for 9×12=108, while 9+12=21, five times which is 105, and these two are the typical or key numbers of measures used in the construction of the great and most prominent works in the valley. In addition to this 108+105=213, which is a circumference value of a circle whose diameter is 67.8, the *pi* ratio being 355 to 113, to be found in the Dunlap works. So also 9×32=288, the number of the measure of that particular circle at Newark, on which Squier and Davis lay especial stress. This combination of measures, as will be seen, is used throughout the Ohio works, whether great or small, of whatever geometrical shape. Mr. Moore made a wooden copy of the stone which he gave the writer, telling him of the measures. But really the statement did not affect him, even to making a trial for the truth of the claim, merely because the fact was so extremely unlikely that it was without consideration rejected. It was not until some two or three years afterward, viz: in the fall of this year, 1882, that the writer's attention was again turned to this matter, from reading in Mr. Wilson's work, a description of the measures of the Gest Tablet, viz: length 5 inches, greatest width 3 inches, least width 2.6 inches. The fact that both were found in the same mound, and also the fact that Mr. Moore had told the writer that the elliptical stone measured "precisely 9 and 12 inches," coupled with this statement as to the Gest Tablet, determined him to make the measures of both. He spent the longer part of one afternoon, repeating the trial tests over and over again. A standard measure being used for reference, it was found that Mr. Moore had not exaggerated, but had stated a plain fair fact. The elliptical stone, on its straight edge did measure precisely 9 inches, and around its curved edge precisely 12 inches. The writer requested Mr. Joseph James to make the test also, who took the measures with the like showing. Since then it has been measured by various parties with the same results. Moreover, it was proved that the stone was approximately the symmetrical half

of an ellipse, because, by mapping it on paper, and then reversing it on its straight edge, the whole ellipse became produced. As to the "Gest Tablet," see Appendix C.

Even if the contriver of this stone had no idea of the particular unit of measure by which it would as to its straight edge measure 9 (nine) of these particular units, viz: British inches, and its circumference 12 (twelve) thereof, especially when the power and convenience of these numbers for particular architectural purposes is considered, it would seem impossible that he could have chanced on it. The fact that this unit of measure so fits in this exceedingly curious mode of making, showing and preserving a standard of measure, is proof of the general intention of the contriver. Couple this fact with another, viz: that the mound in which it was found was an elliptical one, "about 440 feet in circumference," a peculiar division of 5280 feet, (for $\frac{5280}{12}$=440), used much in Mound structure. Still further, connect with these the further facts which we will show, viz: that the use of this measure in the structure of the Mound Builder works, is confirmed in a great number of instances, nay universally; and that too, by an interchangeable play upon the numbers of the measures, as 12 and 21, 24 and 42, etc. Such being the condition of facts, and such is the condition of facts, one must seemingly come to the conclusion that the British inch and foot were used then just as one would have to now to recognize the measures and scale adopted in the construction of a multitude of rooms, passages, openings, etc., in any large and carefully constructed building of to-day.

This stone was found and placed in the museum before many of the surveys of Squier and Davis were made, and before any of them were given to the public. They probably never heard of, certainly they have never mentioned the stone. Its appearance is not calculated to draw attention, and so far as we can discover has never been commented on by any one save Mr. Moore. Beyond the facts, that its shape was peculiar, that it was worked, and that it was found in the mound, there was nothing about it to attract more than a passing glance. It was deposited by Mr. Gridley in the museum at the request of Mr. Carley, with some fragments of other pieces of stone found by Mr. Gridley, at the same time and place, and these are now in the collection of the Natural History Society, bearing the original labels.

To enforce what has been said as to the reliability of the reported

measures of Messrs. Squier and Davis, a number of statements made by them in their work, and bearing upon the matter, are quoted in Appendix B. They are of importance as a part of this paper, but are separated from the text that the actual measures of the works may stand out in clear relief. Premising that this inquiry is confined to what are denominated "The Sacred Enclosures," occupying the levels of the terraces as contra-distinguished from the " Fortifications," or military works, we will now proceed to the classification of the works, agreeably to certain prominent types of measures used. It will be seen that all the various types of measure are inter-related, the one with the other. While this is of the gist of this paper, it will also serve as a remarkable support to the accuracy and faithfulness of the measures reported.

GROUP I.

This group comprises the use of two circles, a greater and a lesser, in combination with an especial square. The square is identically the same in quite a number of instances, the identity being originally and first discovered, as asserted by Messrs. Squier and Davis, upon the compilation of work from the "Field Notes." The measure of the side of this typical square is 1080 feet. As an illustration, the plan of the works in Plate 20, page 56 of Squier and Davis surveys is given (Figure 2). This work is situated in Ross County, Ohio, eight miles south-east of Chillicothe.

Fig. 2.
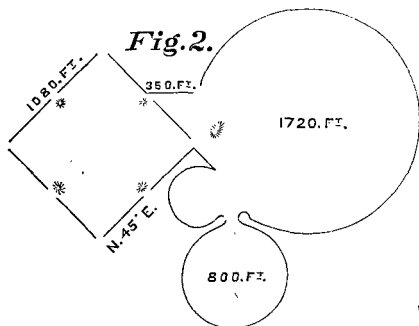
No. 1. The work just mentioned. As seen, the side of the square is 1080 feet. One circle has a diameter of 1720 feet, and the other of 800 feet. An embankment connecting between the square and the circle will be noticed, 350 feet long. 350 feet is 4200 inches, and one-fourth of this is 1050 inches. This relation

is significant, because the measure of 1050 feet is the second most conspicuous one in the mound works. So also, 350 is the reverse of 530, and 530 feet, as will be seen, is part of the side of a square forming the chord of a great circle, in the Hopeton works.

No. 2. Plate 21, page 57, (we quote from Squier and Davis work,) gives *four* works similar to No. 1, the square in each being 1080 feet to the side.

(a) A work on Paint Creek, a tributary to the Scioto River, 14 miles from Chillicothe.

(b) A work on "The Crossings of Paint Creek." The great circle is *about* 1687 feet in diameter, and contains an elliptical mound 140 feet long by 160 feet broad, and 30 feet high; also a small circle 250 feet in diameter. The length of the mound is to be noticed, for it is 1680 inches, a multiple of 42, which number, divided by 4, is 105.

(c) A work on the Scioto River, 1 mile south of Chillicothe. The great circle of this work has a diameter of about 1625 feet.

(d) A work at Frankfort, or Old Chillicothe, on the left bank of the North Fork of Paint Creek. The great circle of this work is about 1625 feet in diameter.

In addition to the works mentioned, we have as especially setting forth the measure of 1080 feet :—

(1) The great square connected with the cone and ellipse, at Marietta, on the Muskingum River. This square measures 1080 feet to the side. Plate 26, page 73.

(2) The great rectangle at Winchester, Indiana. This rectangle measures upon one side 1080 feet, upon the other 1320 feet, or just one-fourth of a mile. If we add the length of these sides, we have 2400. The number 24 is constantly being used in the works in connection or contrast with 42 its inverse. $4\frac{1}{2}$ times 24 are 108, and 42 divided by 4 is 105. If we subtract 1080 from 1320 we have 240. Plate 33, page 93.

(3) The great rectangle at Hopeton, on the Scioto River, 4 miles above Chillicothe, connected with a great circle. One side of this rectangle is 10800 inches in length. The great circle is in diameter 1050 feet. Here the numbers 1050 and 1080 are brought immediately together.

(4) Two great rectangular enclosed parallels, each 750 feet long by 60 feet wide, or 9000 inches long, by 720 inches wide. The area of each is 45000 square feet, or together 90000 square feet. This is 10000 times 1296 square inches.

It is noteworthy that the play of the numbers used about these works is the same that is so familiar with us in our measures of space and time. 1296 square inches is one of our square yards, 4 of which, or 5184, multiplied by 1000 is the number of *thirds* in one solar day of 24 hours, measured on the circle of 360 degrees, as 15 degrees to the hour. That is, a circle of 360 degrees forming 24 hours, reduced to *minutes* and *seconds* and *thirds* gives 5184000′″ as parts. It is the measure of time on such a circle that causes the transfer of the measure of right-lined shapes onto circular ones, by a fittingly chosen set of numbers, and the numbers 6, 12 and 36, have always, and with all nations, been used as the numbers for measures in common, for the two kinds of shapes, viz: rectangles and circles. 360×24 is 8640. The half of 864 is 432, and the play upon this number is common among the nations, as 324, 243, etc. 324 is 36×9, as also 108×3, while 1080 divided by 3 is 360. The illustration on Plate 24, page 66, given hereafter, gives this as an area, viz: 90 feet by 360 feet, or 32400, with 240 by 360 which gives 86400. The use is singularly that of the very ancient Babylonians.

GROUP II. A.

This group is characterized by a great circle, whose diameter is 1050 feet. The circle is connected with a rectangle. The illustra-

Fig. 3.
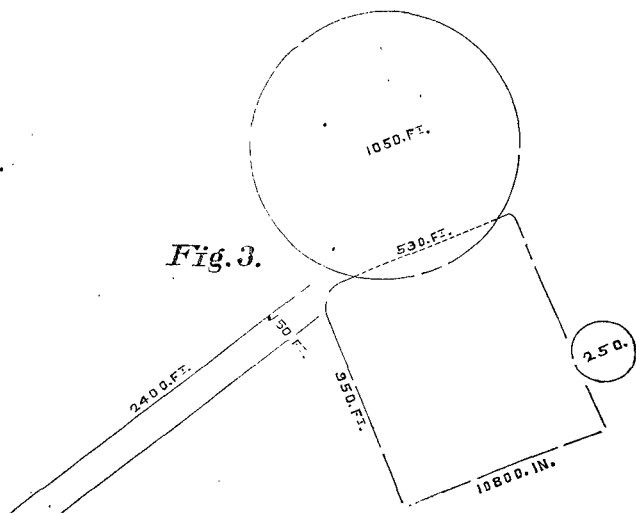
tion is the plan of the Hopeton works, Ross County, Ohio, situated on the east bank of the Scioto River, four miles above Chillicothe. Plate 17, page 51, of Squier and Davis.

No. 1. The Hopeton works. The great circle is 1050 feet in diameter. One side of the rectangle is 900 feet in length, or 10800 inches. The combination with Group I is at once manifest. The side of the rectangle makes a chord of the circle 530 feet long. 900 less 530 feet is 370 feet. Five times 370 is 1850 feet, and 1850 less 900 feet, one side of the rectangle gives 950 feet, the other side of the same.

No. 2. The High Bank works, on the Scioto River, five miles below Chillicothe, Plate 16, p. 50. Diameter of the great circle 1050 feet. This is connected with a great octagon 950 feet in diameter on a measured section.

No. 3. The Seal Township works, near the Scioto River, in Pike County, Ohio, Plate 24, p. 66. Diameter of the great circle 1050 feet. The great circle is connected by parallels 475 feet long by 100 feet wide, to a square of 800 feet to the side. As to the parallel: 475 feet is 5700 inches, and 100 feet is 1200 inches. The area is 10000 times 684 inches. 684 is but a play upon 648. Reduced one-half, 684 becomes 342, which number as said is remarkable in its various uses, as 243, 324, 432, and so on. They are all multiples of 6, as 72×6=432. 54×6=324. 40.5×6=243, and 57×6=342.

GROUP II. B.

Related in measure, this same number 1050 is found in the following works:

No. 1. The Cedar Bank works, Ross County, Ohio, near the Scioto River, five miles above Chillicothe, Plate 18, p. 52. They consist of a great rectangle, two and opposite sides of which measure, each, 1050 feet. The remaining sides measure 1400 feet each. At the centers of the sides of 1050 feet are entrances 60 feet wide. In the rectangle is a truncated rectangular pyramid, 250 feet long, by 150 feet broad, and 4 feet high, with graded ways leading on to it, 30 feet broad. Near the rectangle is an enclosed rectangular parallel, 870 by 70 feet. Near by is a group consisting of a square of 120 feet to the side, 9 feet high, and a circle 250 feet in diameter, having an entrance 30 feet in width. 250 feet less 30 is 220 feet, the characteristic measure of Group III.

1050 feet is 12,600 inches, the half of which is 6300. The number 63 feet is found on "*The Bird*" in the Newark Mounds and elsewhere. The third of 63 is 21, the inverse of 12, and 21×5=105, while 12×9=108.

No. 2. The Junction Group, Ross County, Ohio, on Paint Creek, two miles south-west of Chillicothe; Plate 22, page 61. This group, in the connection, is exceedingly noteworthy, as it shows a play upon the numbers 210 and 120, the sources respectively of 1050 and 1080. It consists chiefly of two circles which touch upon the opposite sides of a regular square, contained in a larger square, whose sides are much rounded, almost circular.— One circle is 120 feet in diameter, the regular square is 120 feet to the side, surrounded by a bank whose shape partakes of the nature of a square and a circle. The circle upon the opposite side is 210 feet in diameter, or 105×2 feet; hence, the unit of measure is 105 feet. Near this last is another circle 210 feet in diameter. Off to one side, at some distance, is a regular square of 160 feet to the side, in a very symmetrical figure, 240 feet across, with sides much rounded, and which partakes of the shape of the circle and the square.

No. 3. The remarkable "Graded Way," near Piketon, Pike County, Ohio; Plate 31, p. 88. The measures of the "way," combine, in a special manner, those of Groups I and II. One section of this "way" is 1080 feet long. From this proceeds an embankment 1500 feet long, at the end of which a bank runs off at a slight angle, a length of 420 feet. In the side of the long line, and at right-angles to it a bank projects 212 feet, then an elbow runs parallel with the main line 420 feet, and from the extremity of this last, diverging from it at a slight angle, a bank runs in towards the main line a distance of 240 feet. Here is unmistakable evidence of the purposed combination of the characteristic measures, 1050 and 1080 feet, of Groups I and II. 24 feet is 6×4, while 42 feet is 6×7. The fourth part of 4200 is 1050, while 180×6=1080 feet. So, also, 212×2.5=530, the chord of the circle in the Hopeton works, where 1080 is directly connected with 1050.

No. 4. The Portsmouth works in Kentucky, opposite to the old mouth of the Scioto River; Plate 28, p. 78. This work consists of two ways, or parallels, each 2100 by 210 feet, converging from opposite directions on a square of 800 feet to the side. The

unit of measure is evidently 105 feet; or 21 as the inverse of 12. So 105 feet is 1260 inches, and the number 126 is quite a famous one among the ancients, especially in Hebrew Cabbalah.

The fact is, these relations of measures so pervade the entire aggregate of the surveys in the work of Squier and Davis that it would be tiresome, and really unnecessary, to repeat almost all their labors simply to force attention by mere accumulation.

GROUP III.

This group is characterized by the use of the number 110, in combination with 1080 of Group I.

The number 110 is derived from the number 5280, which, *in feet*, is one mile in our measure. The divisions of this number give the controlling measures of this group. The number 24 and its inverse 42, gives rise to the numbers as measures, controlling the construction of the works in Groups I and II; and 5280 divided by 24 is 220, and the half of this is 110, which, with its multiples, make the prominent measures in this group.

The illustration, "Figure 4," is the rectangular ancient work near Winchester, Randolph County, Indiana; Plate 33, p. 93.

*Fig.*4.
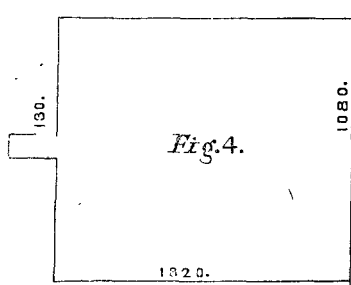
No. 1. This rectangle at Winchester. It is 1320 feet in length, on one side, by 1080 feet upon the other. 1320 feet is one fourth of one mile. 1080 feet as a measure, characterizes the works in Group I. 1320 + 1080 = 2400 feet. In the Newark elliptical work, the number 2400 feet is divided into 1250 and 1150 feet, to make the conjugate diameters. 1320 less 1080 shows the lack to make an exact square. The difference is 240 feet. 1320 is 12 times 110.

No. 2. Rectangle shown in Plate 32, p. 91. It is 220 feet long, by 120 broad. 220×120 = 26400, or 13200×2.

No. 3. Rectangle shown in Plate 29, p. 82. It is 550 feet long, by 630 feet broad. 550 is 10 times 5280 divided by 96. The difference between 630 and 550 is 80 feet, or 960 inches, in the digits of which number we have the divisor of 5280 to give the number 550.

No. 4. Plate 28, p. 78. The work is an oval 110 feet long, by 60 broad (the plans say 70, letter press 60). On the same plate is shown a mound 110 feet in diameter at its base.

No. 5. Plate 23, p. 63, This is a group of 7 circles. Three have a diameter, each, of 130 feet, one of 200 feet, one of 210 feet, and two of 110 feet, each.

No. 6. Plate 36, p. 98. The work is called in the text "The Greek Cross," and is given "Figure 5," because of a remarkable

Fig. 5.
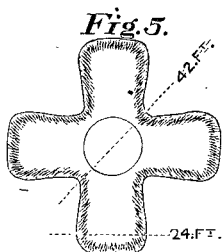
combination of the numbers 42, 24 and 12, and because the foregoing will almost justify the statement that a connection is intended to be shown with the number 1320 feet. The length of the Cross is 90 feet, or 1080 inches. The width of the end of the arm is 24 feet, while the diagonal of the body is 42 feet, one-fourth of which is 10 5 feet. The circle in the center is 10 feet, or 120 inches in diameter. But what is peculiar in this connection is, that if 42 be taken as the diameter of a circle, then the addition of less than $\frac{3}{100}$ of a foot, will give a circumference of 132 feet for the circle, which is the tenth part of a quarter of a mile. Of course, speculation is not allowable in a research of this kind, which is simply to tabulate measures given; yet, from the lesson of these three groups of measures, it becomes easy to imagine that this number 42, was intended to suggest connected relations of the three groups in one figure. This work is 3 feet, or 36 inches high.

With very few exceptions these three groups of measures are involved, in some way, in all the surveyed works of the ancient "Sacred Enclosures," given by Messrs. Squier and Davis. The

groupings themselves, show, by the extraordinary variety, yet perfect dependence, or rather inter-relation, the one upon or with the other, that the surveys *were actual*, and the measures correct as reported. The impression produced by the investigation of the reported measures of these works, is almost irresistible that they are constructions of to-day, made by use of our standard measures, in the familiar denominations thereof. So strong is this impression that unless fortified against proof to the contrary, it would appear that no reasonable man can believe the exact measures were correctly reported by Col. Charles Whittlesey, and by Messrs. Squier and Davis, and this even in the face of the high standing of these gentlemen, and their reiterated averments that their measures were carefully and minutely taken "with compass, line and rule," and were reliable.

I have tried, as far as possible, to make their own assertion as to their measures good, by intrinsic evidence, and judge that this has been done; for certainly no one could suspect them of purposely making so elaborate and coherent a system of inter-related measures, either when taking the surveys, or, as an after-thought, when the "field notes" were brought together. It would have been preposterous for them to have attempted such a thing, nor had they tried, could they, unless by notable perversions, and with very great labor and ingenuity, have fabricated with a different set of measures than used by the Builders, a fraud which would have borne the test of such an analysis as the above.

The discovery of a unit of measure, which exactly fits to the construction of all these works, showing so perfect a system, *as reported,* was the one thing wanting to justify the measures themselves as being rightly taken, and to perfectly satisfy the most skeptical. This discovery was made, as already stated, by Mr. R. B. Moore, in the elliptical stone in the treasures of the Natural History Society. It is simply our "*two foot*" rule over again, but connected with another unit of measure, which we do not possess, viz: that of 9 inches. 9×12 inches$=108$ inches, $12 \times \frac{7}{8}=10.5$, or $9+12$ divided by 2 equals 10.5 inches, while $12 \times 44 = 528$ inches. The application of these very simple grades of measure explains the base of the construction of all the ancient "Sacred Enclosures" of the Ohio Valley. Dr. Drake reported the measure of the elliptical mound in which the measuring stone was found, as about 440 feet in circumference.

The Identification of the British Inch as the Unit of Measure of the Mound Builders of the Ohio Valley.

Paper Contributed by J. RALSTON SKINNER, Dec. 1, 1885, to The Cincinnati Society of Natural History.

GROUP IV.

Can we not admit, then, as established, that the Mound Builders possessed a standard unit of measure, which is to day known and used as our British inch? If so. they possessed a standard of 12 of these inches, combined on the same tablet with one of 9 inches, the tablet being of such a form that the 12 implied the use of 24 inches This arises from the natural suggestion of completing the ellipse by doubling the curvature of the elliptical measuring stone or tablet. In making use of their tablet we find that they applied the same numbers interchangeably as designative of sides of squares, of rectangles, of lengths of long parallel ways, and as connected with circles (and ellipses), both to measure diameter and circumference lines. Indeed, the relation of square to circle, in terms, for measure of the general constructive numbers, or simpler, in terms of the number 6 and its multiples, is everywhere beyond contradiction manifest.

From this it becomes safe to say that this mode of construction rested upon a knowledge of the relation of a right line to the curved one of the circle, or of diameter to circumference of the circle; and consequently of the relations of circular and rectangular areas. The Mound Builders knew of the geometrical relations of these shapes, of their numerical ratios, and had the peculiar standard of measure mentioned to exhibit the numerical relations by application to the shapes themselves. We will try and show this from the works.

The exception is so rare to the use of the multiple of 6 feet, or to the numbers 210, 120, 420, 240, 1,080, 1,050, and the divisions of 5,280, that when found it is worthy of especial attention. Such an exception does take place as to the measures of one great and distinctive work, and one of the groups of works of the Scioto Valley, near Chillicothe. But while it is such an exception, nevertheless we do find its remarkable measures connected with *the combination* of the most prominent measures of the groups, viz., 1,080

and 1,050, so as to show the numerical relation of diameter to circumference of a circle. We will show this, but will first set forth one work, which directly and significantly shows the knowledge of the circle of 360, connected with the measure of 240 and 90 feet, or 1,080 inches. This work is part of the Seal Township Group, in Pike County, Ohio, near the Scioto River, Plate 24, p. 66. In this group are some of the most perfect figures of the circle inclosing a square, the diameter of the circle being 300 feet, and the side of the interior square 125 feet, and of the ellipse. As to the circle and square the authors say: "Nothing can surpass its symmetry," and further: "It will be remarked that we have here the square, the circle and the ellipse, separate and in combination—all of them constructed with geometric accuracy." As to the work to be shown, "Figure VI.," they say: "Its outlines beautifully distinct;" and they conclude: "It is impossible to resist the conviction that some significance attaches to these singular forms"

Fig. 6.
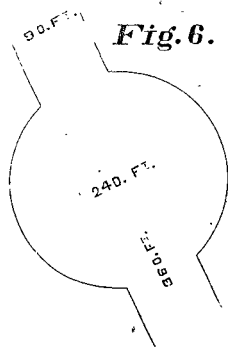
Here, in Figure VI., we have the circle of 240 feet in diameter $240 \times 8\frac{7}{2}^{5} = 1050$. The width of the passage way through the circle is 90 feet, or 1080 inches, 1080 divided by 3 is 360, and the length of the passage way is 360 feet. This is 4320 inches. The length of each arm of the passage way is 60 feet, or 360 inches multiplied by 2, 360 less 120 is 240 feet, the diameter of the circle, or 2880 inches, the circumference, in feet, of the famous Newark circle, which will be given in its place. 4320 less 2880 is 1440, 144 being the square of 12. $432 \times .75 = 324$, twice which is 648. These two numbers, viz.: 432 and 324, were especially used with

the Chaldeans and ancient Babylonians, or pre-Semites. With the Chaldeans, from the beginning to the deluge was 120 *sari* of 360 years each, or 43,200 years. In the very most ancient Babylonian account of the flood, taken by George Smith, from the cuneiform tablets of Nineveh, the use of this number with 1080 and 360 is made so as to bring out a play upon these numbers, 432 and 324. Khasisatra is relating to Ishdâbar (Semitic compound word, meaning " *Man-Word* ") the events of the deluge. He says, in regard to constructing the Ark, and furnishing it : " I poured on to the exterior 3 times 3600 (10800) measures of asphalt, and 3 times 3600 (10800) measures of asphalt within. 3 times 3600 (10800) men, porters, brought on their heads the chests of provision. I kept 3600 chests for the nourishment of my family, and the mariners divided among themselves 2 times 3600 (7200) chests," that is, each porter had 2 chests. Here 10800 is used 3 times, making 32400, or our number 324. Add 3600 mentioned once and we have 36000, to which, if we add the remaining 7200, we have 43200, wherein, by the combination, we obtain the other of our numbers, 432. The intention to show the relation is obvious. These are the familiar numbers, with a like play upon them, in the Mound Builder works, but with the relation established as an interchangeable play upon geometric shapes and linear measures. The Chaldean account uses the numbers with relation to time and capacity measures, and men. The probably most important use of this number 432 with 234, was astronomical. Together, 432 and 234, make 666. We see that 10800×3=32400 is a manifest play upon the number 432, and 32400 is the half of 64800. Let 64800 feet be the circumference of a circle, that is practically the circumference of the great Newark circle, 2880× 22.5. The diameter of this circle will be 20626.4700+feet. But as *seconds* in *time* measure 206264.700 *seconds* is the *radius* seconds of a circle whose circumference is 360 degrees, and this particular radius is made use of in the common astronomical formula of to-day for finding the sun's distance. So, also, the ancient Egyptian cubit, " Nilometer," has been measured as 20.625 British *inches* (Wilkinson). Use it as 20.62647 B. inches, a difference of .00147 of an inch in 20+inches, and the details of construction of the Great Egyptian Pyramid can be recovered, in the *actual measures* (British) made of those details by the most careful experts. Now,

20625 is, of itself, a most important number, and shows itself in the constructive frame-work of the *denominations* of the British measures which were used by the Mound Builders, as we see, and by the ancient Egyptians. So, that in these mound constructions, we not only have the peculiar play of numbers common to the old Chaldeans and Egyptians, but also the same numbers applicable with the same identical unit of measure, viz.: the British inch. Let us explain this. It is objected to the British measures that they are imperfect, because, in the make up of the *rod*, a fractional number of *yards* and *feet* is made use of. The objection is a very short-sighted one. 16.5 feet, or 5.5 yards make one *rod*. The *acre* is made by a rectangle 5280 feet, or one mile in length, by the half of one rod, or 8.25 feet, in width, and 640 of these rectangles make one square mile. It will be observed that the length of one mile is 528 feet multiplied by 10; also, that the half of one rod is 8.25 feet, which, as a *number* reads as the *reverse* or inverse of 528, indicating in feet the 10th of one mile. Is this peculiarity of inverse arrangement chance, or purposed? The latter, for they are changes derived from a common source, which, numerically, connects itself with the proportional elements of the circle, and those of the especial circle of 360 degrees alluded to. Divide 5280 by 256 and the quotient will be 20625, and divide 825 by 4 and the quotient will be 20625, the very number of the reported measure of the Nilometer Cubit. Thus, the number 20.625 in relation to our British mile is an essential part thereof as a common factor in the make up of its denominations of measure, while 20.625 B. inches is, as seen, measured as the recovery of the ancient Egyptian Nilometer Cubit. But the relation extends further. The late John A. Parker discovered the integral proportional relation, numerically, of circumference to a diameter of a circle to be 20612 to 6561, the latter being the square of 81, which is the square of 9, which is the square of 3. This 20612, as 20.612 B. inches, has been shown to be the recovery of another ancient Egyptian cubit, called the Turin cubit,* out of which springs the other or Nilometer cubit, thus:— 20.612 B. inches : 6.561 : : 64 8 : 20 6264700 inches or the Nilometer cubit, in the last two terms of which proportion we recognize the numbers mentioned above.

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*This Egyptian cubit measure in the Turin Museum was measured with microscopic accuracy. by Bidone and Plana, and found to be .523524 of the French *me er*, or 20.61172 +British inches; evidently from a great number of tests and for convincing reasons, one of the two royal cubits, viz,: 20.612 inches, the other, as shown below, being 20.62647 inches.

Now, therefore, at the very center of a system of every variety and diversity of measures, we have *three* numbers *almost identical,* and each one a key to a variety or family of the system, viz : 20612, 20626.470017 and 20625. It was a part of ancient usage to obtain from simple numbers, easily carried in the memory, the use of fundamental ones. The number 20625 is easily had and easily discovered, and in our mound measures we have a key, viz. : 12 and 21 feet. 7 times 21 feet is 147 feet, and 20625+.0000147 is 206264700, or one of the other numbers ; while 20625 less 13 (and in the mounds we have a number of instances of the use of 13, in one special instance, connected markedly with the numbers 110 and 210, pointing directly to this very use) is 20612, the third of the famous trio. Now, all these shapes, measures and numbers, are presented in the Mound Builders' constructions, and doubtless these very readings, were we sufficiently familiar with the use and relations of numbers, because the uses spring so easily and naturally from the abundance of measures afforded, as the same measures are related to each other in construction. Everything points to the fact that the Mound Builders not only knew the *pi* relation, but also by use of the very numbers specified by their uses in measures.

But, moreover, and what is a most singular fact, they did set it forth quite distinctly in a secondary and derivative form, and one which the writer has found to be used in the self-same secondary way among the Asiatic ancients, which form is numerically, diameter 113, circumference 355.

This form is very ancient* and yet very modern. It is to be found in our elementary works. The established *pi* is 3.1415926, while this is 3.1415927

Such is what the writer judges to be justifiable comment upon Groups I and II and III, together with this remarkable work of Seal Township, Pike County, Ohio. And now to resume the direct line of investigation thus interrupted.

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*It is found used in the books of Moses as a modified form of the *pi* ratio 6561 to 20612, and while the last is the base of a cubit measure, this one of 113 to 355, is used chiefly in matters of measures of time, especially in the symbolism of the scenes of Mt. Sinai. The multiple of this last ratio by 6 is 678 to 2130, which numbers are found in the Hebrew Bible as measures, (1) in the symbol of the circle of a " *head* " or the word RASH, whose numbers are 213—(2) in the hieroglyphic use of the " *Dove* " and " *Raven,*" whose numbers as I see are 71x5=355, and the word " *and the raven,*" the sum of whose numbers is 678, and (3) in the Zodiacal sign of the " *Two Fishes ;* " the word " Fish " or *NUN* carrying the numbers 565, which multipled by *two* equals 1130, and so on : which 2130 is the sum of 1080 and 1050, the measures found so typical and prominent in mound construction, in grouping different works, as seen.

As stated, the exceptions throughout the various works to the use of the typical numbers of measures is exceedingly rare; and certainly one of the most noteworthy is to be found on Plate 23, p. 63. This exception embraces "The Dunlap Works, Ross County, Ohio." They lie within one mile of the Cedar Bank Works, and within two miles of the Hopeton Works, already cited, consequently they can be taken as partaking of the nature of, and as a connected branch of development of the works of the Scioto Valley, the Newark Works, the Marietta Works, and so on. They are situated on the right bank of the Scioto River, six miles above Chillicothe. The copy of the survey is given as Figure VII.

Fig. 7.
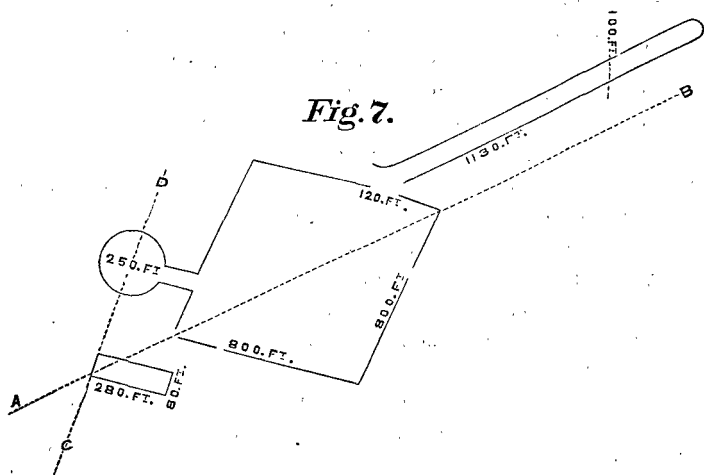
Upon examination of the original plan the construction is singular, though not noticed by the surveyors. A trial test line, *a b*, parallel to the long way, is the diagonal of the irregular square, and extended locates the corner of the rectangular out-work, whose long side is parallel to one side of the square. Constructing the rectangular out-work, the extension *c d* of its short side passes through the center point of, and as to a part, becomes the diameter line of the circle attached to the square. Thus the measuring numbers of these various parts become related to each other by geometrical construction.

On the long way of 1130 feet it will be observed the surveyors have shown a line 100 feet long, as its height (of breadth) vertical to the horizon. The rectangular out-work is 280 feet long by 80 feet broad, and its area is 22400 feet, the half of which is 11200 feet, to which, if 100 be added, the sum is 11300 feet, or 10 times the length of the long way. The same may be shown in this way: The height of 100 feet taken from 10 times the length of the long way, or 11300 feet, is 11200 feet, twice which, or 22400 feet, equals the area of the rectangular out-work. By this we are led to look to the divisions of the figures, or component parts thereof, by 2, and the use of such parts by means of additions and subtractions to show intended interrelations. So, also, we are taught by all the measures of the groups: (1) that the reverse or inverse reading of key numbers is used to produce as keys, other and controlling and correlating relations, such as, 24 may be used as 42, 528 as 825, 21 as 12 ; (2) that key numbers are divided into other parts to apply to differing geometrical shapes, as for instance, 2400 feet, the length of a long way, is divided into 1250 and 1150 feet, to show the conjugate diameters of an ellipse, and so on.

To show the application : Part of $c\ d$ forms for, such purpose, the diameter line of the circle, which, is 250 feet long, and this naturally divides into halves of 125 feet each, to form the radii of the circle. By sympathy 280 feet the length of the out work, connected, as seen, with this circle, and with the long way, may be divided into halves of 140 feet each, so that from these parts we have the numbers of 140 and 125 thus desired. We see the number 8 used about the works as the digit of 80 and 800. Divide 1130 by 8, and we have 14125, which is the sum of the two numbers, 140 and 125, used as 140+00125=14125. Such relations show a purpose of checking, using and emphasizing the measures and parts of measures of the various parts, by means of geometrical construction ; but in this case all serve to concentrate upon and point to the number 1130.

But again take the measures and parts of measures of the outwork, located as a connecting constructive link between the 1130, and the 250 and 125 of the circle. 140 feet is 1680 inches, the eighth part of which is 210 inches, while 80 feet is 960 inches, the eighth part of which is 120 inches. Here we get the 21 and 12, which from the standard of 12 and 9 inches on the elliptical stone .

produce 1050 and 1080, the key numbers of the work in general; for 21×5=105, and 12×9=108.

What can there be of significance about the combined use of these two numbers, 1050 and 1080, fitting them to the scheme of common measure, adapted interchangeably to differing geometrical shapes, as, for instance, squares and circles?

Add together 1050 and 1080, and we have 2130. Divide this number by 6 and we have 355. We all know that 355 is the peculiar number, which, related to 113, gives in integrals the closest approximate numerical relation of diameter to circumference of a circle ever discovered in modern times, until John A. Parker found that 6561 : 20612 And this seems to be the intended teaching of this group of the Mound Works.* It affords the numbers by which the geometrical relations of squares and circles can be interchangeably related or compared; while the other groups make such relations and comparisons, by the units of the standard practically adopted for actual measure. Which unit refers to a basis of numbers by which measures of space and time may be correlated on squares and circles. The whole scheme, so far as geometry and numbers are concerned, is one which would naturally develop with all or any parts of the human race, independently of location, climate or family. That which could not be so developed would be the same *practical unit of measure* adopted by which all relations might be shown in constructed works We may adopt it as a true-ism that all people making use of this practical unit of measure must have derived it from a common source. The Mound Builders possessed it, so did the Old Egyptians, Hebrews, Romans, and, in modern times, the British people.

GROUP V.

This somewhat long and analytical investigation can now be appropriately closed with a description of the famous Newark Works, Licking County, Ohio, Plate 25, p. 67; upon the detailed measures of which the greatest pains were bestowed by Mr. Charles Whittlesey, Mr. E. G. Squier and Dr. E. H Davis. As to the plate, it is

*While 1130 denotes a diameter to a circumference of 355×10, if 1130 be taken as a circumference value, it will in whole numbers indicate (with a decimal expression) a diameter of 360. With the Egyptians the Hebrew term Pharaoh was the number 355, the lunar year; which year was with the Hebrews the word *Sunah*, which carried this numerical value in the value of the word, while with both Egyptians and Heb ews they had the year of 360 days. The smaller lunar year of 354 days was " Pharaoh's daughter."

said by the authors: "The map here given is from an original and very careful and minute survey made in 1836, by Charles Whittlesey, Esq., Topographical Engineer of the State of Ohio, corrected and verified by careful re-surveys and admeasurements by the authors. It may be relied upon as strictly correct." The chief object of giving this work is to show that the numbers of measures, viz., 24 feet, heretofore used on right lines, are transferred to designate the circumference of a circle. In the Hopeton Works we have a parallel way 2400 feet in length, connected with the great circle whose diameter is 1050 feet, and with the great rectangle whose side is 1080×10 inches. The especial feature of the Newark Works is the great circle of 24×120=2880
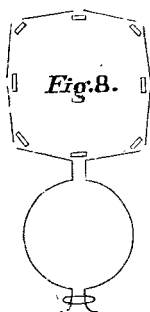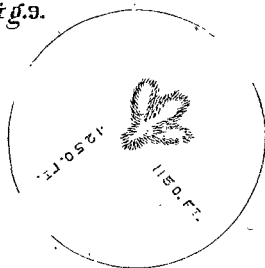

feet in circumference, and the great ellipse whose conjugate diameters are, respectively, 1250 and 1150 feet in length. It will be seen that the sum of these diameters is 2400 feet, 12 times which is 10 times 2880, the circumference of the great circle, while their difference is 100 feet, or 1200 inches; so that the ellipse is made to be related to the circle by the length of the sum of its conjugate diameters. The circle, as is seen, Figure VIII., has a circumference of 2880 feet. Of it the authors say: "Unlike the other circular work, *this is a true circle*, two thousand eight hundred and eighty feet, or upwards of half a mile in circumference." It is connected with the octagon by a passage way 300 feet long by 60 feet wide. Recess to "Crown Works" 100 feet, about. Length of mound across crown work 170 feet. Within the octagon there are 8 mounds, rectangular, truncated pyramids, each 100 feet long by 80 feet wide at base, and 5 feet high. · Here, at once, the relation of these works within the octagon to the circumference

of the circle becomes manifest. 100 feet is 1200 inches, 80 feet is 960 inches, and 5 feet is 60 inches, 960×120=115200, the $\frac{1}{40}$ of which is 2880 inches, the number, in feet, of the circumference of this circle. So, also, the octagon is a shape of 8 sides, and 2880×8 23040 which is 11520, or the area of the base of one of the mounds in the octagon, multiplied by 2. Moreover, this relation is also extended to the conjugate diameters of the ellipse. The sum and difference of 1250 and 1150 are, respectively, 2400 and 100 feet, or 28800 and 1200 inches, and the sum of the sum and difference of these is 57600, two-tenths of which is 11520, and the $\frac{1}{20}$ of which is 2880.

The ellipse is especially remarkable for the so-called "bird structure" which it contains, and its measures As the circle is connected with an octagon, so the ellipse is connected with a square. The "bird mound," in the centre of the ellipse, affords, by reason of the measures of its various parts, a table of selected measures, the most of which are of familiar use throughout the groups in the valleys. It affords a table of typical measures. The description is as follows: "It can hardly be called a mound, but is rather a group of four, so arranged and connected as to constitute an unbroken outline. Denominating the figure, for the sake of distinction, a bird, the dimensions are as follows: Length of body 155 feet; of each wing 110 feet; (difference 45 feet); between the tips of the wings,* measuring in a right line, 200 feet; width of body 63 feet; of wings in center, 45 feet; of the same next the body, 40 feet; height of mounds composing the body, 7 feet; of mounds composing the wings, 5 feet. The head of the bird points directly towards the entrance of the enclosure. The bearing of the body is S. 65° E." Seriatim, the same measures in inches are 1860, 1320, 2400, 756, 540, 480, 84, and 60 inches. Here are the roots of our typical measures: $\frac{63}{6}$=105 and 63+45=108 110 is of itself one, and 110×12=1320, which is used; and 1320×4=

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*The use of *wings* calls to mind the Hebrew " *cherub*," which, in its great variety of forms, had one common feature, viz.: these " *wings;*" and these were certainly used as types of measure, (1) in the division of the length of the Ark of the Covenant, or 2.50 cubits. into two parts, viz : 1.25. and 1 25 cubits. which division ind cated the use of the two stones which were placed therein (*abn*, 125,, *abn* 125). These were to indicate, in connection with the name Jehovah and Sinai, the measures of the lunar year, for the sum of the squares of the two sides of a square, the side being 354.3670548, the exact value of that year in days will be 521125, the square root of which will be 5011506, the diagonal of the square, a proposed change on the numbers of Jehovah's name and Sinai, to monument this astronomical value. and (2) in the division of the 20 cubits of the Holy of Holies by the wings of the cherubim. In the Hebrew Bible the ratio 113 to 355 is called " *The man* (113) *even Jehovah measure.*"

5280. 105+108=213, and $\frac{2\cdot3}{6}$=355 which, with 113, measures the elements of the circle.

And now let us notice the fact of an identity of measures, by means of numbers of measures applied to geometrical relations, of these works with those of the Great Egyptian Pyramid. We have identity of idea, identity of interrelation as geometrical shapes by common numbers, and *identity of the unit of measure* to accomplish this; a strange combination when we think that this identity applies to works on two separate continents ; to one structure called the "wonder of the world," the evidence of the height of civilization, removed back in time beyond history, and to others which belonged to a race removed in time far back of the Egyptians, a race whose bones in the valleys are so "*very dry*," as to have turned to powder, and a race which as yet had no tool to cut stone to build into their structures as the Egyptians did.

The diameter of a circle whose circumference is 2880 feet, is 916.7320+feet, and 2880 is a multiple of 24, for 24×120=2880. We have seen how intimately the numbers 1080 and 1050 are connected with 24 and 42, and how favorite a use the reversals of numbers are, as 12, 21, 24, 42 ; and so we might note it of 105 as 501, and 108 as 801.

Now the base side of the Great Egyptian Pyramid is 763.943+ feet, or diameter of a circle whose circumference would be 2400 feet. 763 943+feet is 9167.320+inches, which number, divided by 10, is 916.7320, or in feet the diameter of the Newark Mound circle. But we can carry the connection further. The half base side of the Great Pyramid is 381.971+feet, and $\frac{9}{10}$ths of this is 343.7745+feet. This is the length of the Descending Passage Way in the Pyramid. But 343.7745+is the diameter of a circle whose circumference is 1080, and 3437.745+*minutes*, is radius minutes of the circle whose circumference is 360 *degree*. All the interior construction of the pyramid is built upon the use of the length of this passage way, which is 260 Nilometer cubits. So, also, the Hebrew divisions of time, the least and greatest, in the year, were embraced by the number 1080 (Basnage).*

One word more and we will finish. The reversed use of numbers is a favorite one with the old Hebrews in their Sacred Records.

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*That is, with the Hebrews, their least measure of time was the division of the hour into 1080 *chiliakim* or scruples, while the sum of the measures of the great circles of time were 355 days for the lunar year, 360 days for the calendar year, and 365 days for the solar year, together 355+360+365=1080 days.

Here, with the Mound Builders, the writer finds it again, and these are the only instances of his finding it, with the one solitary exception of the measures of the rectangular area to make one British acre, wherein such area is $528 \times 10 = 5280$ feet long by 8.25 feet in width, the numerical value 528 being reversed to 825 (8.25 feet being the half of one rod).

After the close of the above, the writer visited Col. Charles Whittlesey, in Cleveland, Ohio, who personally assured him of the accuracy of the measures of the mound works referred to in the foregoing. He also stated that he himself had a manuscript lately completed, his own independent attempt at finding the standard of measure of the Mound Builders. He obtained it by finding an even factor which would apply in common, with various multiples, to some eighty measures of the mounds, selected as within his own knowledge to be relied on as accurate. This manuscript he shortly after published, and as I now recollect, found upon measuring his "*factor measure*," that it was 30 British inches. By this it will be seen that two trials for such a standard, independent of each other, result in finding exact multiples of a common unit, viz.: the *British inch.*

APPENDIX A.

The History of the " Gridley Measuring Stone," or the Elliptical Stone found in the Fifth and Mound Street Mound, in the City of Cincinnati.

In the collections of Indian relics belonging to the Cincinnati Society of Natural History, is a small one, each member of which bears the printed form of label belonging to the old society called The Western Academy of Natural Sciences, formerly existing in the same city. The members of this small collection are labeled as follows. " No. 3, Indian relics, deposited by C. P. Gridley." " No. 5, Indian antiquities, deposited by C. P. Gridley." " No. 6, Mound relics, deposited by C. P. Gridley." " No. 7, Mound relics, deposited by C. P. Gridley." " No. 12, Mound, Fifth street, deposited by C. P. Gridley." " No. 13, Mound, Fifth street, deposited by C. P. Gridley." Of these the semi-elliptical stone measure of the text, the measures of which are there given by 9 and 12 inches, is the one labeled as " No. 5." This group, or small collection, passed, with the rest of the collections belonging to The Western Academy of Natural Sciences, into the posses-

sion of The Cincinnati Society of Natural History on its organization, and has been in that possession ever since to this date, February, 1883. This collection, so labeled, consists of three fragments and two entire specimens; the two that are entire, being, first, the semi elliptical stone measure, or the " Gridley Measure," and second, a fine slate relic, of a shape lately described by Mr. Gridley.

The current tradition relative to this group has been that it consists of relics which were found in the Fifth and Mound Street Mound. Little, if any, special attention has ever been paid to these relics. They have, to appearance, nothing to attract more than a passing glance, and seem valuable only in the general sense of being veritable Indian remains pertaining to our locality. Beyond this current report no certainty attached to them until December 5, 1878. On that day Mr C. P. Gridley called upon Dr. H. H. Hill, of Cincinnati, a member of and an officer of the Cincinnati Society of Natural History. Mr. Gridley's object was to obtain possession again of the Mound Builder relics above mentioned, which he had loaned the Western Academy of Natural Sciences, and which, as said, had passed into the possession of the Cincinnati Society of Natural History. It seems that Mr. Gridley had moved to the city of Springfield some twenty-five years previously, where he had since lived, and where he now, at this present writing resides. Mr. Gridley made a statement to Dr. Hill as follows :

" CINCINNATI, December 5, 1878.

" Mr. C. P. Gridley, of Springfield, O., this day called on me and stated that he was for many years a resident of Cincinnati, but moved to Springfield twenty-five years ago. While living here, and during the time the mound known as the Sixth and Mound Street Mound was being cut down, he frequently dug in it to see what he could find. After it was cut through, exposing the bed of ashes, charcoal, etc., (described by others) in the bottom of the mound, he dug into the bank immediately over the center of the ash bed, 3 or 4 feet above the level of the surrounding earth, and found some flint arrow and spear heads, two stone chisels, one slate ornament with a hole through it, several fragments of flat stone, which he thought had been ornaments, and one flat stone with beveled straight edge, while the other was of an ovate form, wide at one end and

running to a point at the other; length perhaps 10 inches; material fine grit stone— might be sand stone. 'At the request of Mr. S. T. Carley I deposited the above described relics in the collection of the Western Academy of Sciences, with the understanding that I could have them at any time he (I) wished to take them away.' He now wished to do so. After explaining to him how they were turned over to the Cincinnati Society of Natural History, and the difficulty of getting the matter satisfactorily before the parties concerned in the matter, he seemed to think it rather useless to attempt to get them. This interview was very satisfactory to me, as it settled in my mind the origin of the specimens, or in other words, the fact that they were taken out of the mound known as the Cincinnati or Sixth and Mound Street Mound.

<div style="text-align:right">(Signed)   "H. H. HILL."</div>

While this statement was (as it is) of undoubted value as regards the relics, yet the exceedingly great value of the "Gridley Measure" as a discovered unit of measure belonging to the Mound Builders and the construction of the " Mound Works" of the Ohio Valley, made the writer collect all the facts possible with regard to it, and he wrote Mr. Gridley, receiving the following replies:

"SPRINGFIELD, Clark Co., O., Jan. 29, 1883.

" DEAR SIR :—Yours of the 18th is received. In answer to your inquiries I would say that at the time of the removal of the mound I was residing on Longworth street, near Mound street, and often dug in it to find what I could. The relics were about 4 feet above the base of the same, and over a bed of ashes and charcoal, in which were found several skeletons partly in the ashes. I found the stone of this shape   , and one   with a hole in it, 2 stone chisels, and rough stone used to sharpen chisels on, and a copper ring which was on an arm bone of a skeleton. It broke in two after I found it and before I left it with the Antiquarian Society. If you will refer to Mr. Carley's antiquarian book you can find the day and date when deposited and the several items found. I believe they were found in the spring of '46. If you will call on the man who owns the lot he may be able to inform you of the year. As to the Gest stone, I believe it was found after mine. I think I saw it. The earth was deposited on Columbia street or Second street—the mound earth. If I could see you I could give you a description of what I found; but did not retain. I sold to Dr.

Shotwell two skulls of singular form. A Mr. Clark was with Mr.
Carley when I left the relics with the Antiquarian Society.

    " (Signed)   C. P. GRIDLEY."

The second reply is as follows:

           "SPRINGFIELD, Clark Co., O., Feb. 8, 1883.
" DEAR SIR:— In answer to your request I would say that it
was over the center of the mound that I found these relics, and
over the bed of charcoal of this form lying north and south 4x10
feet.   (Signed)   C. P. GRIDLEY."

Thus the location of the finding this measure stone was at a
depth of about 26 feet below the top of the ancient mound, and at
or near its center, and the location of the find saves the relic from
any presumption of its belonging to a later, or what we call *intru-
sive* deposit. As described by Dr. Drake, this mound measured
440 feet in circumference. A reference for the history of the re-
moval of this mound, and for all that is to be gleaned as describ-
ing it, and the finding of the " Gest Tablet " is made to a pamph-
let entitled, " The Prehistoric Remains Which Were Found on the
Site of the City of Cincinnati, O., with a Vindication of the Cin-
cinnati (Gest) Tablet," published by Robert Clarke, Esq., in 1876.
The " Gest Tablet," which must always hereafter be associated
with the " Gridley Measure," was, as per the descriptions in Mr.
Clarke's valuable pamphlet, found at the center of the mound and
about 4 feet above its base, so that the places of deposit of the two
stones must have been very near the one to the other.

Mr. Gridley having referred to Mr. S. T. Carley, who was a
member of the Western Academy of Natural Sciences, and after-
wards a member of the Cincinnati Society of Natural History, I
ascertained that Mr. Carley was a resident of Mount Holly, Cler-
mont County, Ohio, and wrote him touching these matters. I re-
ceived from him in reply the two notes following :

                " MT. HOLLY, Feb. 4, 1883.
" DEAR SIR :—Yours of January 31st received. I remember the
circumstance of Mr. Gridley's depositing in the collection of the
Western Academy of N. S. a number of specimens of Indian relics
subject to his demand. They were all labeled with his name. If
the stone you allude to has his name attached to it, it is undoubt-
edly one of the lot he deposited at that time " (about thirty years
ago). " At the time the Academy collection was transferred to

he Society of N. H ; nothing had been heard of Mr. Gridley for many years, so the specimens were thought of only as part of the collection. If Mr. Gridley should claim them, I have no doubt but the Society of Natural History will do what is right and just in the case. If the stone is of any special value, it will be worth more in a general collection than it could be in the hands of any single individual.   Respectfully,

"(Signed)   S. T. CARLEY."

"*Mt. Holly, Feb.* 9, 1883.

"DEAR SIR :—It is with pleasure I acknowledge yours of the 5th, as it enables me to understand your purpose. Such a book as is referred to by Mr. Gridley " (the 'antiquarian book') " does not exist, but the records of the Academy of N H. ought to contain an account of the transaction with Mr. Gridley, which must have occurred about the time you mention ('41). I remember the circumstances of the transaction distinctly, and I also remember the particular stone referred to. Mr. Gridley was in the habit of show_ing me his findings from the Fifth street mound, so I feel sure the specimens deposited in the collection by him were found in that mound. Mr. Gridley could have had no motive to deceive any one in regard to the place where the stone was found. Besides, he was too honest to have done so. I know he went very often to the mound in search of relics, and I sometimes went there with him, but I never found any implements, but I once found three human skeletons, each lying on the back, extended, and the skulls of all three were crushed in from back to front, which I consider an unusual and interesting fact.

" Respectfully yours,

" (Signed)   S. T. CARLEY."

Fig. X.
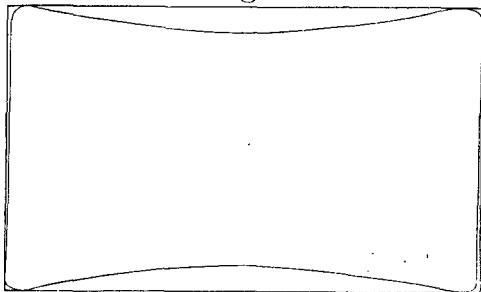
With this history of the Gridley Measure, we give Figure X, the actual measures of the Gest Tablet, *reduced to half size*, taken from the slab itself, as referred by try squares to a perfect rectangle. By calipers the measures of the stone are as follows; Extreme length 4.96–7 inches. Greatest width 2.99 inches. Least width 2.50 inches. Corrected by being referred to a perfect rectangle, its measures are: Extreme length exactly 5 inches. Greatest width 2.99 inches; least width 2.50 inches. Chord of shallow arc on each side 4.50 inches.

Since writing the foregoing, my attention has been called by Dr. Hunt, President of the Society of Natural History, to an article in the May number, 1843, of the "*American Pioneer*," published in Cincinnati. This article describes and figures the Gest tablet and the Gridley relics, those referred to in his letter above, which include the "*measuring stone*," the subject of our main article. It speaks of "Figure 1" (the Gest Tablet) as a carved stone, found at the bottom, and near the center of an ancient mound, "now being removed from Mound street, near Fifth, this city." The mound is described as about 25 feet high. From the place where this was found, "about ten feet distant in the mound, and nearly on the same level, were found parts of another skeleton, with a beautiful stone ornament four inches long, two inches wide, and nearly an inch thick (figured), also *a stone* instrument nine inches long and three wide (figured), this is about a fourth of an inch thick. The long, straight side has a diamond-shaped edge, as if it had been used for dressing leather. These (with others described) were discovered by and are in possession of Mr. Gridley of Longworth street." The article says the Gest Tablet was taken from the mound in 1841, and this, with Mr. Gridley's statement, fixes the date of the find of the "measuring stone."

APPENDIX B.

The following quotations are made from the Smithsonian Report of the Ancient Monuments of the Mississippi Valley, to establish, as far as possible the facts: (1) Of care and accuracy in the measures of the mounds; (2) Of identities and correlations of groups and measures, such as to prove in the minds of the surveyors the possession by the Mound Builders of a standard of measure, and some means of taking angles correctly; also a scientific and

religious object in the construction of the works, and (3) Of a further proof of the correctness of the measures as surveyed.

As to taking and reporting the exact measures of the various works:

" Indeed, no exertion was spared to insure entire accuracy, and compass, line and rule were alone relied upon in all matters where an approximate estimate might lead to erroneous conclusions." Introduction, page 34.

" These plans are all drawn from actual and minute, and in most instances personal survey, and are presented, unless otherwise specially noted, on a uniform scale of 500 feet to the inch. When there are interesting features, too minute to be satisfactorily indicated on so small a scale enlarged plans have been adopted. Sections and supplementary plans are given whenever it is supposed they may illustrate the description or assist the comprehension of the reader. The greatest care has in all cases been taken to secure perfect fidelity in all essential particulars." (Page 10.)

" To put all skepticism at rest, which might otherwise arise as to the regularity of the works, it should be stated that they were all carefully surveyed by the authors in person. Of course no difficulty existed in determining the perfect regularity of the squares. The method of procedure in respect to the circles was as follows: Flags were raised at regular and convenient intervals upon the embankments, representing stations. The compass was then placed alternately at these stations, and the bearing of the next flag ascertained. If the angles thus determined proved to be coincident, the regularity of the work was placed beyond doubt." (Page 57.)

" The square or rectangular works attending these large circles are of various dimensions. It has been observed, however, that certain groups are marked by a great uniformity of size. Five or six of these are noticed in the succeeding pages; they are exact squares, each measuring 1080 feet to the side, a coincidence which could not possibly be accidental, and which must possess some significance. It certainly establishes the fact of some *standard of measure* among the ancient people, if not the possession of some means of determining angles." (Page 48.)

As to the plan of the Newark Works, on foot note to page 71:
"A number of plans of these works, as well as of those at Marietta,

have been published; but they are all very defective, and fail to convey an accurate conception of the group. The map here given is from an original and very careful and minute survey made in 1836 by Charles Whittelsey, Esq., Topographical Engineer of the State of Ohio, corrected and verified by careful re-surveys and ad-measurements by the authors. It may be relied on as strictly correct." A similar explanation is made on " page 73 " as to the plan of the Marietta Works.

But apart from these statements of exactitude, there is a proof of it to be had from the measures themselves. The works consist of groups, in some instances separated from each other by many miles, yet on the compilation from the field notes it soon became manifest from the surveys that there was identity of groups and measures as stated. Thus besides the care taken in the admeasurements of individual groups, justification was found in the agreement of measures of these with other and similar groups, upon which equal care had been bestowed. This statement is made by the authors.

As to the coincidences of measures :

" It is not to be supposed that these numerous coincidences are the result of accident." (Page 71.) " Although in the progress of investigation singular coincidences were observed between these works, yet there was at the time no suspicion of the identity which subsequent comparison has shown to exist." (Page 56.) Again : " There is one deduction to be drawn from the fact that the figures entering into these works are of uniform dimensions, which is of considerable importance in its bearing upon the state of knowledge among the people who erected them. It is that the builder possessed a standard of measure, and had some means of determining angles. * * The coincidences observable between them could not have been the result of accident, and it is very manifest that they (the works) were erected for common purpose. What the purposes were the reader must judge. Without entering into any argument upon the subject, we may content ourselves with the simple expression of opinion that they were in some manner connected with the superstitions of the builders " (Page 62). As to a *unique* work in Seal Township, Pike County, Ohio, they say : " It is impossible to resist the conviction that some significance attaches to these singular forms." (Page 67). As to the Portsmouth works they say : " Whatever may have been the divinity of their belief, order, symmetry and design were among his attributes; if, as ap-

pears most likely, the works that most strongly exhibit these features were dedicated to religious purposes, and were symbolical in their design." (Page 82). As to the works in Montgomery County, Ohio: "It tends to confirm the impression produced by the other works that some significance attaches to the combination of the two circles and the square." (Page 83). As to the Newark works: "Several extraordinary coincidences are exhibited between the details of these works and some of those already described. The smaller circle F is nearly identical in size with that belonging to the "Hopeton Works," and with the one attached to the octagon in the High Bank group. (See plates xvi. and xvii). The works last named are situated upon the Scioto, seventy miles distant. The square has also the same area with the rectangle belonging to the Hopeton, and with the octagon attached to the High Bank works. The octagon, too, has the same area with the large irregular square at Marietta. The small circles, G, G, G, betray a coincidence with the works above mentioned, which ought not to be overlooked It is not to be supposed that these numerous coincidences are the result of accident." (Page 71). So on page 66 they say: "It will be remarked that we have here the square, the circle, and the ellipse. separate and in combination, all of them constructed with geometric accuracy."

We have still another series of measures which go far to confirm the accuracy as to those given of the groups of works quoted. Many of the tumuli covered *altars,* so called, located generally on the ground level, and at the center of the mounds in which they were respectively built. These altars were curiously constructed. The shape was first marked out, and a portion of ground dug out to the depth required. This space was filled with sand, beaten down very compactly. Fire was used upon this until the substance of the altar become solidified to a mass, preserving its shape and substance as of a solid stone. Above this, quite often, another, and sometimes a third altar was constructed, of defined regular shape, followed by the same use. Over these finally the earth was heaped and the mound formed. By this the altar in its integrity would be preserved for any number of years. The measures of some of these altars, as they are stated in the article on "Sacrificial Mounds," commencing with page 144, are as follows: No. 1. A circular base 9 feet, or 108 inches in diameter, diameter of top 3 feet, or

36 inches, depth 9 inches.   No. 2.   Rectangular base 10 feet, or 120 inches long, 8 feet, or 96 inches broad.   Top 6 feet, or 72 inches long, by 4 feet, or 48 inches broad, height 18 inches.   No. 3.   Square base 10 by 10 feet, top 6 by 6 feet, and a circular bowl in this of 4 feet in diameter.   Depth of altar 22 inches, sinking a foot or more below the original surface of the ground.   No. 4. Second and upper altar 8 feet by 8 feet.''   Here, the application of the small measures, in inches and feet, is as natural to us as if these units of measure had been used by the ancient builders, and seems to confirm the measures reported of the large works in the open.

The extreme antiquity of the works is marked by the frail decayed condition of the bony structure of the remains, and this is to be emphasized because of their perfect protection from chemical disintegration and other wear since the time of their deposit.   To somewhat illustrate the duration of bony structure :   Schlieman, at the Agora, in ancient Mycenae, found the tomb of Agamemnon containing several remains.   The bodies had been carefully interred and protected partly by gold masks.   ''The bones and even the skulls had been preserved; but these latter had suffered so much from the moisture that none of them could be taken out entire.'' The Trojan war has been estimated at about 1700 B. C., or about 3600 years ago.   The remains in the ancient mounds, such as those of the mound in question, are too much reduced to dust for preservation, save the jaw bones and teeth.

[To be Continued.]

THE IDENTIFICATION OF THE BRITISH INCH AS THE UNIT OF MEASURE OF THE MOUND BUILDERS OF THE OHIO VALLEY.

APPENDIX C.

THE "RICHARDSON TABLET" THE "GEST TABLET" AND THE "CLARKE TABLET" AS RELATED TO AND CONNECTED WITH THE "GRIDLEY MEASURING STONE."

Introductory remarks on the significance of the Richardson and Gest tablets.

These tablets are pictures or ideographs. The pictures are phallic and through the phallic idea give rise to an expression of measures of time, as their chief function. These tablets are of very great archæological value, in the opinion of the writer, as affording a solution by their simple plainness of the much vexed question of the pre-historic intendment of the symbol of *the cross.* They afford an interpretation of the so frequent cross symbols of Central America ; and by this help, these in turn almost assuredly interpret the more obscured Asiatic representations. No one after examining the Richardson Tablet need go astray in assigning a proper causative idea for the use of the emblem of the cross in prayers for rain in Central America. These tablets lead us to a comprehension in an important degree, quite satisfactory, of the Palenque Cross; and that in related connection with the old Mexican hieroglyphical manuscript cross of the M. de Ferjèrvàry man uscript at Budapesth Hungary, pictured in volumne 22 of the Smithsonian Contributions to Knowledge. In this last the tree of life rises out of the yoni ; under another meaning of the same symbolism life rising out of death; and this is part of the significance of the Palenque Cross. Having obtained a clear idea to some extent, of the symbolic interpretation of these, we become reassured as to a like significance attaching to the yoni and lingham symbols of the Hindus, and especially to the *asheras* or *groves*, as depicted by Dr. Inman in his " Ancient Faiths embodied in Ancient Names. " Indeed the phallic creative or generative symbol seems radical as to all systems of religion, ancient and modern, pagan and Hebrew and Christian. So far from being hurtful to a rational

or philosophical view of the latter, this helps to even a more acceptable comprehension thereof. For in place of looking upon the Hebrew system as springing abruptly out from the world of thought, and the nations, as the first true revelation of a personal God to man, we become informed that this Hebrew system was a legitimate development of a world effort at formulating a mode of religious philosophy; out of material long before accumulated by the pre-semite Old Babylonians and Egyptians, who can be traced for their origin in Asia to the head of the Persian Gulf and the mouth of the Nile, where the trace is lost, unless it be recovered in Central America, and thence from the Mound Builders. The old and pure ideas conveyed under symbols, became lost, and acceptance of these symbols was made merely for what the eye saw; consequently a degredation to the sensuous, and that inexpressible offensiveness to modern ideas, which so loath any possible connection or relation of such symbols with the high ideals of the teachings of the Hebrew and Christian sacred books. We may look upon the Hebrew religion as contained in the Sacred Text, as recognizing this ancient symbolic origin as the very source out of which it sprung, and the scaffolding or skeleton on which it was framed. But in doing this it reformed the abuse of gross interpretation and reverted to the true and ancient use of the phallic or nature symbols, as setting forth a mode of exact science, which should lay at the basis of religious worship. Out of natural science or knowledge the development of the true and pure went on evolving out of the ages, culminating in the Christian Dispensation, which to-day actuates the world.

The writer would refer to the very sensible temperate and judicious remarks on phallic pictures made by Mr. Charles Rau in Chap. iv, ("The Group of the Cross.") of his article on the Palenque Tablet, published in volume 22 of the Smithsonian Contributions spoken of; two of which it seems well to quote:

(*a*) "However, it will be evident to every one who has the faculty of divesting himself for a time from now prevailing ideas that the mysteries of generation must have powerfully acted upon the imagination of men in earlier ages, and must have led, in consequence of a tendency characteristic of a certain stage in human development, to the symbolization of that life-giving and life continuing agency. In the course of time the meaning of the emblem

became modified, though it always appears to relate in some sense to the creative energy of nature."

That which proves Mr. Rau to be right is the fact that, among other things, the technical terms for these real images with the Hebrews, became in after times, and are to-day made use of in modern languages, to convey a modified and spiritual, in place of a real, significance.* Again:

(*b*) "The pudency of Christian nations of our time is by no means an innate quality, but simply the result of long-continued training."

This remark also is true. No one can carefully study the reach of phallic symbolization without, somewhat to his amazement, finding that one of the chief places for discovering multitudes of representations derived directly from it is in church ornamentation and dress. It seems the place especially devoted to this mode, slightly, and only slightly, obscured. The writer is led to make this comment from the idea that, though the remark of Mr. Rau is true in itself, Mr. Rau seems to have labored under a common misapprehension in making it, viz., that of attributing to the origin of the symbol, and its use, a gross, sensual, and truly degrading, because merely animal and sexual, conception. The writer considers that the use of the symbol was conceived of in the utmost purity of thought, as the very basis and radix of all religious systems of worship, and of all theosophic philosophy, which the better world has ever possessed.

He would also call attention to a remarkable fact connected with the phallic literature. While the cross-bones and skull have ever been taken as emblems of mortality, the grave, and decay, they have been also taken as the emblems of femininity and its generative functions. In Hindoo representations, the skull and cross bones are placed over the pudenda, or door of life. The mountain top, gilded with light, presents the same type when con-

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NOTE.—For an illustrative instance: The Hebrew Jehovah, in the most solemn passage of Exodus, gives his name as SaCR, which word means, in its first and essential signification, *membrum virile*. From the signification the word, passing over to the secondary meaning of *male*-victim, through the offering of which the Deity was *memorialized*, hence took the derived signification of "*memorial*." "The making of, or placing the SaCR. or *memorial*, before the Lord," was handed down, *idem sonans*, among the nations, and with the Roman priest became "SaCR-*facere*," or afterward, with the English-speaking race, SaCR-*fice*; thus showing that the latest modern usage points back to the ancient phallic usage as its essential element. To this can be added: The word *cherub* is, in Hebrew, a *participle* from the word CRB, the participle being CRUB (*cherub*). For the initial C use its kindred form SC, and we have SCRB, which, with the proper voweling and the Greek termination, gives us SCaRaB-*eus*, the *scarabeus*, or Egyptian beetle, emblem of divinity. The Egyptian hieroglyphical meaning of the *winged* beetle was, especially, *the flight of lunar time*; being sacred to the moon (Seyffarth); because of the moon's supposed generative influence.

trasted with glooms of deep recesses or valleys.   While the phallus represented life giving or bearing energy, and the yoni passive receptivity, the contrasting ideas were paralleled with those of life and death   The woman represented the door of darkness or evening, into which the sun descended as into its grave, but out of which the new-born sun arose, or Horus was born of Osiris and Isis.   With all her qualities of loveliness, fascination, and attraction, she was, by force of certain similes, represented as the insatiable monster craving for and swallowing up all life, and hence her extreme emblem, Death, or the Dragon, or most horrid monster of destruction.   To quote the language of the Church, she was—"*Arma diaboli, via iniquitatis, scorpionis percussio, nocivum genus, sepulchri titulus.*"   In this phase she was the type of death and destruction, hateful and devouring.   In the Palenque Tablet and the Ferjèrvàry picture the phallus raises out of the yoni, which in turn rests upon the head of a devouring monster, or of a skull; either of which answers for the appropriate symbol intended.

THE RICHARDSON TABLET.

(See Figure xi.)

This Mound Builder relic was found by Mr. J. M. Richardson on the 31st day of January, 1879, in excavating a mound on the road leading from Wilmington, Ohio, to Harveysburg, known as the Wilmington and Waynesville Pike, about three and one-half miles from Wilmington.   The bones with which the relic was found were decayed to a lime-like dust, but the teeth were yet preserved.   The history of this find is contained in a pamphlet entitled "An Illustrated Description of Pre-historic Relics found near Wilmington, Ohio," published in 1879, by Dr. L. B. Welch and J. M. Richardson.   This account was copied into the *American Antiquarian*, in the October number, 1881.   The writer thinks there can be no doubt as to the genuineness of the Richardson Tablet.   It is formed after the same general plan with the Gest Tablet, and serves to explain and interpret the latter.   In it the picture is so plain that there can be no mistaking the key-fact intended to be displayed.   Figure xi is a very exact reproduction of the tablet.

The picture is formed on a representation of the phallus, with testes, in the form of an inverted *Tau* cross.   The testes form the base or bar of the cross.   The left testis, as one looks at the repre-
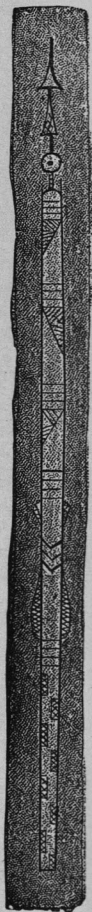
FIGURE 11.—THE WILMINGTON TABLET.

sentation, has the form of the male human head, male because of the chin-beard, the right one has the form of a female human head, female because of the side locks or curls. Thus under this form *man* and *woman*, or male female, is represented in one figure. So, also, from the general character of the tablet, the male head, with its abundance of hair, represents the *sun*, heat, and dryness, or earth, while the female head represents the *moon*, coolness, and moisture, or water. The male expresses active vitalizing energy, the female expresses passive receptivity. A strand of hair from the male head distinctly lines out the body or shaft of the phallus, and doing so turns and then returns on a line parallel to the first, back to the head. From the space occupied by the female head a line extends up vertically through the length of the phallus, and issues out of its summit in *waves of water* to the right and left, forming the expanse of the firmament. The space intermediate between the testes or bar and the heavens is divided into four quarters. In the first, on the female side, and next to the head, is to be found a shape like the crescent new moon. In the second, or the next above and on the same side, is a shape as of the full moon. In the third, on the opposite side at the top, is to be found a shape as of the moon in her third quarter. And finally, in the fourth, or in the compartment next to the male head, is to be found no moon at all, or the dead quarter. It will be observed that the quarter next to the male head contains a great quantity of its hair, a fractional portion of which extends up into the quarter above. The opposite quarter next to the head of the woman contains the rough outlines of a duck. The quarter above this shows a dead, leafless branch; while the opposite quarter at the top has, beside the strand of hair, a patch like a garden, and also waved curved lines as perhaps of wind. It would thus seem that beside the four quarters of the moon the slab is intended to represent the four seasons of the year, Spring, with the germinating heat rays and garden patch, summer heats by the mass of hair or rays of the sun, autumn by the duck, and winter by the leafless branch. It seems, moreover, that the figure in the summer quarter formed by the strands of hair is intended rudely to show the head of the goat sucker inverted, with its wide mouth and very short beak, the mouth wide open, as it is to be seen in the summer heats when catching insects. This bird, or, as it is commonly called, the bull-bird, has very few species or varieties; it is almost alone, exceedingly characteristic, and markedly a bird of the summer heats.

The tablet has some very peculiar number markings at the top, set, one part to one side, and on the lower part, to the left as you look at it, of the upper line, and one part to the other side and on the upper part, to the right as you look at it, of a lower line. Commencing in the center, and counting as we proceed toward the left, the *spaces* are 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, or ten spaces, while the *projections* between the spaces are 1, 2, 3, 4, 5, 6, 7, 8 and 9, or nine projections. On the other side, counting as we proceed from the center to the right on the lower line, we have 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10, or ten spaces to the turn of the row of spaces and projections downward on the side, then there are two more spaces down the side, or 11 and 12, thus making a separation of the 12 spaces into 10 spaces and 2 spaces. By a like counting the protuberances are 1, 2, 3, 4, 5, 6, 7, 8 and 9, or nine protuberances, distinctly to the turn at the corner down the side, then two more, or 10 and 11, making eleven protuberances separated into 9 and 2. The description of spaces and protuberances is conventional, for they may be taken either way, with the same numerical results. By this, we have *two sums*, which added give 18, and multiplied give 81: also 9 and 12 which added give 21, the reverse of 12, and multiplied give 108: also, 9 and 11, which added give 20: also $9+10=19$, and $11+12=23$. The sum of these is 42, and their difference 6, and so on.

This tablet is of Waverly sand stone $3\frac{7}{8}$ inches wide, $4\frac{7}{8}$ inches long and $\frac{5}{8}$ inch thick. The reverse is unmarked save by 5 deep and 3 shallow grooves. It will at once be seen that the number forms which the markings are capable of forming, are singularly a repetition of the type measures, so much used in Mound Builder construction in the Ohio Valleys. Around the edge of the tablet, making of it an embracing cartouche, is to be found a long curiously wrought and armed arrow, or dart; and because of resemblance the writer is tempted to call attention to the Mexican ideograph or symbol of *Itz-co-atl*, or "Obsidian Serpent," pictured in Mr. Rau's Contribution in volume 22, of the Smithsonian Contributions, on page 51, as also to the explanatory text.

THE GEST TABLET.

(See Figure xii.)

This tablet is so remarkable as a work of advanced art that it can be ranked with those of Palenque and Copan. Examined carefully with those and it presents a likeness of artistic culture, a

sameness. So, too, it presents the same features which Mr. Rau notices as to the Palenque productions. He says: "Any one who examines the representation of the Smithsonian tablet will be struck with the want of symmetry of its sculptures and its incorrect (artistically) outline. * This asymmetrical appearance of the slab, is not at all owing to its restoration, as might be imagined at first sight, but simply to a lack of precision on the part of the sculptor. * * Though the bas relief figures on it show a commendable finish, the total aspect of the sculpture is not that of a well executed work, at least not in our sense. The Palenque Cross shows some incongruities in the proportions of its parts, and the glyphic signs and ornaments, are not disposed in an absolutely harmonious order. * * * The absence of accurateness in the execution of details observable at Palenque did not escape Morelet's critical judgment. 'The ruins of Palenque' he says 'have been perhaps too much eulogized. They are magnificent certainly in their antique boldness and strength, but I must say, without contesting their architectural merit, that they do not justify, in their details, all the enthusiasm of archæologists. The ornamental lines are wanting in regularity, the drawings in (modern artistic) symmetry, and the sculpture in finish.'" The artist had all the mental conceptions, but he lacked the perfect skill of the later Greek, or of our day, for the artistic perfection of his work. The work was "irregularly regular" to quote the apt expression of Mr. Gest; and so peculiarly so, as to confirm its genuineness. Perhaps the chief reason of all this was the lack of adequate instruments for working in hard stone. "Instruments of flint, or some other hard stone were much better suited for that purpose," says Mr. Rau, speaking of the obduracy of the stone of the Palenque Tablet. And, indeed, stone chisels were all the Mound Builders could have had for working the Gest tablet. Mr. Rau describes the tablet of the Palenque Cross as being $3\frac{1}{4}$ inches thick, and consisting of a hard fine grained sand-stone of yellowish gray color; the relief of the sculpture being $\frac{3}{16}$ of an inch.

As to material, the Gridley measure is likewise a hard fine grained sand-stone of yellowish gray color, $\frac{4}{12}$ths of an inch thick. The Gest tablet answers, for material, also to this description, though the grain of the stone may be a trifle coarser than that of the Gridley measure. The Gest tablet is $\frac{3}{8}$ths of an inch thick, and the relief of the sculpture is $\frac{2}{48}$ths of an inch, distinctly de-

fined even in detail, but not sharply.   Had this tablet been found
at Palenque it would have been taken as belonging to the Palenque
material and style and culture.

On comparison, the general resemblance of the Richardson
and Gest tablets will be at once seen.   The Gest tablet, Figure xii
like the Richardson, has the phallus and testes as the base of its
representation, in the form of an inverted *Tau* cross.   In place of
the human heads for the testes those in the Gest tablet are repre-
sented by the labyrinths of ducts belonging to the organ, with a seed
vesicle in the midst.   These labyrinths unite by a ligament which
continued forms the shaft of the phallus.   At the summit a waved
line or bar projects either way, in place of, and for, the waves of
water in the Richardson slab.   In the body of the phallus the seed
vesicles are represented as developed to the stage of *embryo foe
tuses*, and these again, are projected forth, or over to the sides, and
are represented as in a further stage, viz., that of *four* weeks
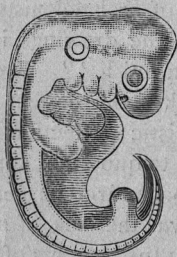growth, or 28 days.   This is shown in Figure xiii by the sketch

Figure xiii

of that period of development taken from a medical work.   These
projected foetuses are four in uumber, two on each side of the
shaft, and are made to occupy the four quarters of the divided
space, one to the quarter, in a similar manner with the occupancy
of the like quarters, or compartments, on the Richardson slab, by
the phases of the moon and the seasons of the year.   It will be
seen that the positions occupied by the foetuses, or the *men*,
are always by contrast *reversed.*＊   From the fact that the male or-

NOTE.—This reversal is evidently to signify the *double sex.*   The same thing held in
Hebrew esoterism,—for, the word for "*man*" contained the numbers 113 (diameter to a
circumference of 355), the lunar year in days), whereas the word, or name, "*The-woman*"
contained as the sum of its numbers 311, or the *reverse* of "man":—the two, together, as
113–311, being the division or unfolding of the number 226, which last was the sum of
the numbers of the letters of the Hebrew expression Y'*sod Olaum*, or "*mystery of cre-
ation*", which was the name given to the location of the number 9 on the genitals of the
cosmic man of Cabbalah (Ginsburg).

Figure 12.—THE CINCINNATI TABLET.

gan is made to show the office or function of the womb, the whole emblem is androgyne; nor does there seem to be any distinctive mark of sex, or unequal power, or quality, used either on the right or left of the shaft, save the reversal of position.

This slab like the Richardson, has number markings, distinct and clear. At the base of the Tau cross there are 6 distinct spaces and 7 lines, the spaces being broad. Beneath this and on the edge of the stone are 23 distinct, but small, spaces and 24 lines. The position of these 23 spaces is such that groups of them seem to be marked by the lines of the larger spacing, viz., 3, 7, 13, and 20. At the top there are similar markings, viz., 7 spaces and 8 lines, and 24 small spaces and 25 lines. In these the groupings are: 13, emphasized, and 20. In the whole sculpture there are 16 round dots or small circles, of which two are in the testes. In the body of the phallus there are 4, and continuing the count over, toward the right and left, respectively, we have 5 additional on each side, making a count of 9 and 9.

For the broad spacing and lines we have $6+7=13$, and $7+8=15$, together 28; and 13, the number of Catamenia in the year, multiplied by 28 equal 364, or the week year, while $28 \times 15 = 280 + 140 = 420$. Of this 280 days is 40 weeks or the period of parturition, while 420 is 210×2, and 210 days is called the period of *viability*. So, also, $6 \times 7 = 42$, or 21×2, and the reverse of 21 is 12. Or, these spaces and lines being 6, 7, 7, and 8, are together equal to $7 \times 4 = 28$. The smaller spacing and lines give us $23 + 24 = 47$, with $24 + 25 = 49$, or together 96 (or 24×4, or 12×8).

Thus we have the exact description of these tablets. The numbers shown on these are familiar as those used in the measures of the Mound Builder works in which the tablets were found; also as periods of lunar and solar time, and especially lunar time, as marking the natural periods of menstruation, quickening, viability, and gestation. The relationship becomes closer when we find that the Gest Tablet, as to its size, has special measures from the same unit or standard with the Gridley stone; they are: length, 5 inches; least breadth, 2.50 inches; greatest breadth, 3 (2.99) inches, with two chords of 4.50 inches each.

THE CLARKE TABLET.

(See Figure xiv.)

Another and very late *find* is fortunate, timely, and of great value, as confirming the genuineness of the Richardson and Gest Tablets. It is what is to be known as the "Clarke" (or Waverly) "Tablet," now the property of Mr. Robert Clarke, of Cincinnati. It is presented in Fig. xiv. On the left side, as one looks at it, are to be seen the unmistakeable *fac-similes* of the foetus images of the Gest Tablet, while on turning the plate, so as to have the top on the right hand and side, the presentation exhibits the *fac-similes* of the involved duct labyrinths of the *testes* in the same tablet. In this, however, the shaft seems to be changed to represent the yoni.

This tablet was discovered March 12, 1885, by Mr. J. P. MacLean, in the collection of Dr. W. R. Hurst, of Piketon, Ohio, was obtained of him and disposed of to Mr. Clarke. The tablet was broken in two pieces, which Mr. MacLean found, piece by piece, in the collection. The history of the tablet, as given by Dr. Hurst to Mr. MacLean, is as follows: "The tablet was taken from a mound on the farm of Abraham Cutlip, about one mile south of Waverly and about three and one-half miles north of Piketon, about March, 1872. It was found about three feet from the bottom of the mound, on the north side, by Abraham Cutlip and David Allen, who were cutting away the mound. Dr. Hurst obtained it from them while they were at work. The mound was on the second bottom of the river, had been fifteen to twenty feet high, but had from time to time been cut away, so that it was only about ten feet high at the time of this excavation. The mound was composed of clay. With the tablet were found 'darts, badges, and human bones.'"

There can be no doubt of its genuineness, and for this reason it is of very great value as corroborative of not only the authenticity, but also the reading of the Gest and Richardson Tablets.

If we now refer to the Gest Tablet for comparison, we will find that it is, in its main or essential features, the same with the Palenque Cross and the Ferjèrvàry picture. In all cases we have the tree of life, with a human being (Androgyne) standing upon either side. In the Ferjèrvàry picture the phallus. rising out of the yoni, has seven branches on each side; the phallus at the top bifurcating into two branches (for water waves), extending out on

FIGURE 14.—THE WAVERLY TABLET.

either side, and these, again, are separated into further subdivisions, etc. In its frame, on the three sides thereof, we have for markings 3 twelves, or 36 in all, distinctly done. By reference, for similar pictures for similar showings, on the Asiatic Continent, to Dr. Inman's "Ancient Faiths embodied in Ancient Names," we will find identity of design. (See his illustrations in Vol. I. on the cover, and on pages 156 and 160, with his explanations.) In these illustrations notice the numbers of bunches of *flowers* to mark the catamenia, so arranged as to make 13 by a count of 6 plus 7, also the numbers 18 and 21. He himself notices the number 13. "This number suggests an explanation. At every lunar period the female has an affection which by its regularity has received the name of menses, or Catamenia, and there are 13 of these periods in the year." Notice also, in Vol. II., p. 648, the phallic and yoni symbols of the Christian Church. One of these represents a monk so marked as to show a man's head with a fish's body. There are 12 marks forming the fish. He holds a string of beads, 7×2 or 14 of which are seen. She, standing in an alcove formed by the sun, the mouth of the vagina (*vesica piscis*), holds a string of beads 13 in number, and so arranged as to count 5 and 6 and 7. The rays of the sun are arranged so that 18 are seen, and these grouped to form 10, 3. and 5. There are two more but covered rays, making 20 in all. In Sharpe's Egypt one will find the tree of life, a woman in the branches pouring water. It is inverted, so that the roots are in place of the branches, the shaft projecting into the ground (Isis). All these refer to a like symbolization. The fact is, that having caught at the root ideas, or natural basis of symbolic language, our literature is full to repletion of scattered fragments, which can be gathered, collected, recognized, and referred to a whole, or perfect ancient mode of communication.

There is remarkable harmony between the number indications on these slabs with the mound measures and the Gridley standard of measure by which the mound works were constructed. But likewise there is such harmony between the measures of time indicated by these numbers and the calendar forms of the Mayas that attention is called to the fact. It is to some extent agreed on that there is connection between the Maya culture and that of the consructors of Palenque and Copan. Reference is now made to "The Maya Chronicle" by D. G. Brinton, M. D., Philadelphia, 1882. He says: "The Mayas had a mathematical turn, and

possessed a developed system of numeration. It counted by *units* and *scores;* in other words it was a *vigesmal* system." The cardinal numbers commenced with *one* and closed with *twenty*. From twenty upward the *scores* are used, as " one to the score equals 21," and so on. Now as to their calendar. Their year was divided into 18 months of 20 days each, or 360 days, to which, to make 365, *five* days called " days without names " were added. " But the calendar was not as simple as this. The days were not counted from 1 to 20, and then beginning at 1 again, and so on, but by periods of 13 days each," the 14th day beginning a new week. "28 of these weeks make 364 days, thus having 1 day to complete the tropical solar year. When the number of these odd days amounted to 13, in other words when 13 years had elapsed, this formed a period which was called 'a *katun* of days'. It will be readily observed by an inspection of the following table, that 4 of these indictions, in other words, 52 years, will elapse before a 'year bearer' of the same name and number recommences a year. A cycle of 52 years was thus obtained in a manner almost identical with that of the Aztecs, Torascos, and other nations." " 20 days were a month, and 20 years was a cycle *katun*.* This katun was divided into 5 lesser divisions of 4 years each. They also had a *katun* of 24 years. They had a great cycle of 13×20=260 years, called an *Ahau Katun*, or 13×24=312 years. The Maya Chronicles make from the earliest time to the coming of the Spaniards 71 katuns, which equal either 1420 or 1704 years, according to the katun used of 20 or 24 years." It seems quite evident that the great cycle of 312 years was composed of 6 cycles of 52 years each.

The peculiar make up of these calendar data brings out in relief a series of numbers, which are so connected with the Mound Builder system of measures, and the tablets spoken of, that it may at least be suggested of them that they point to a common system of use. 13×28=364 is the catamenial year, and 28 days would, because of being a catamenial period, be a holy week of 4 periods of 7 days each; the number 7 being " *holy* " because it was the base of so many periods of generative time, as, 28, 126, 210 and 280 days.* It is thought this conclusion is justified by the showing of the phallic system every where among all nations of antiquity. We have 6+7=13 and 6+7+7+8=28, on the Gest tablet. 28 is 4 times 7, and 52×7=364, showing a co-ordinating mode of

*Note. It seems remarkable, that this word *Katun* for a small cycle is the same with the Hebrew *katon* or *little*. It is evident that, because the phases of the moon run so co-ordinately with the generative periods, it was supposed to be the *intelligent cause*, and was therefore worshiped.

counting time, especially in the priestly or sacerdotal way, founded on the idea of phallic creative growth by periods of 7, viz., $4 \times 7 = 28$, of *menses*, $7 \times 18 = 126$, of *quickening*, $30 \times 7 = 210$, of *viability*, and 40×7 (or 28×10) $= 280$, of *gestation*, and $52 \times 7 = 364$, the holy, or week year. So, also, in the great characteristic measures of the Mound works, viz., 1050 and 1080, we find a mode of the use of a year cycle founded on $52 \times 6 = 312$, for, $105 + 108 = 213$, which is the reverse of 312 and indicates it by the Mound Builder custom of reversed numbers, and again, 213 of itself is 6 times 355 the numerical value of the lunar year in days. $355 \times 6 = 213$, and 312 is a great cycle of 52×6.

The writer considers himself very fortunate to be able to close this paper with a fact of discovery in Yucatan, by Dr. Augustus Le Plongeon and his estimable and brave wife, of Brooklyn, New York. When they made the remarkable discovery of the sepulchre of the royal Kan Coh, at Chichen--Itza, they found therein a great number of personal ornaments. These consisted of worked arrow and spear heads, of fine quartz and serpentine, with shell beads, and extraordinary ornaments in jade, of marvelous polish. The point of great interest as to these is this, that though the Mayas had arrived to the great advance in civilization of splendid stone cutting and mason work and sculpture, with an elaborate hieroglyphical alphabet—an advance parallel to that of the old Egyptians and Babylonians— yet their articles of personal ornamentation *were the same* (of the same kind, material, and design) *with those of the Mound Builders of the Ohio Valley.* The labors of Dr. and Mrs. Plongeon in Central America are the most valuable of all others, and their results are so surprising, and so promising of the discovery of *"missing links,"* that they should be furnished with material efficient support by the Government in the further prosecution of this wonderful field of their self-sacrificing personal investigation.

<div align="right">J. Ralston Skinner.</div>

NOTE. *Erratum.* In a note to a former article 5011506 is said to be the square root of 51215, whereas it should be 251152.